Giant galactic outflows and shocks in the cosmic web

Oei, M.S.S.L.

10
List of publications

The following list contains all first-author scientific publications, including shared† first-authorships, that I have completed during my time as a PhD student. The works are listed by publication date from high to low cosmological redshift. In the digital version, the coloured words link to the NASA ADS and the *Neurology* website.

'20 **1.** *A probabilistic approach to direction-dependent ionospheric calibration*
Martijn S. S. L. Oei†, Joshua G. Albert†, Reinout J. van Weeren, Huib T. Intema, Huub J. A. Röttgering
2020, *Astronomy & Astrophysics,* 633, 77, Published

'22 **2.** *The discovery of a radio galaxy of at least 5 Mpc*
Martijn S. S. L. Oei, Reinout J. van Weeren, Martin J. Hardcastle, Andrea Botteon, Tim W. Shimwell, Pratik Dabhade, Aivin R. D. J. G. I. B. Gast, Huub J. A. Röttgering, Marcus Brüggen, Cyril Tasse, Wendy L. Williams, Aleksandar Shulevski
2022, *Astronomy & Astrophysics,* 660, 2, Published

'22 **3.** *Filamentary Baryons and Where to Find Them: A forecast of synchrotron radiation from merger and accretion shocks in the local Cosmic Web*
Martijn S. S. L. Oei, Reinout J. van Weeren, Franco Vazza, Florent Leclercq, Akshatha Gopinath, Huub J. A. Röttgering
2022, *Astronomy & Astrophysics,* 662, 87, Published

'22 **4.** *Data-driven phenotyping of central disorders of hypersomnolence with unsupervised clustering*
Martijn S. S. L. Oei†, Jari K. Gool†, Zhongxing Zhang†, Stephanie Mathias, Yves Dauvilliers, Geert Mayer, Giuseppe Plazzi, Rafael del Rio-Villegas, Joan Santamaria Cano, Karel Šonka, Markku Partinen, Sebastiaan Overeem, Rosa Peraita-Adrados, Raphael Heinzer, Antonio Martins da Silva, Birgit Högl, Aleksandra Wierzbicka, Anna Heidbreder, Eva Feketeova, Mauro Manconi, Jitka Bušková, Francesca Canellas, Claudio L. Bassetti, Lucie Barateau, Fabio Pizza, Markus H. Schmidt, Rolf Fronczek, Ramin Khatami, Gert Jan Lammers
2022, *Neurology,* 98, 23, Published

'23 **5.** *An intergalactic medium temperature from a giant radio galaxy*
Martijn S. S. L. Oei, Reinout J. van Weeren, Martin J. Hardcastle, Franco Vazza, Tim W. Shimwell, Florent Leclercq, Marcus Brüggen, Huub J. A. Röttgering
2023, *Monthly Notices of the Royal Astronomical Society,* 518, 240, Published

'23 **6.** *Measuring the giant radio galaxy length distribution with the LoTSS*
Martijn S. S. L. Oei, Reinout J. van Weeren, Aivin R. D. J. G. I. B. Gast, Andrea Botteon, Martin J. Hardcastle, Pratik Dabhade, Tim W. Shimwell, Huub J. A. Röttgering, Alexander Drabent
2023, *Astronomy & Astrophysics,* 672, 163, Published

'23 **7.** *Do luminous giants populate special large-scale environments? Or: the radio luminosity–Cosmic Web density relation for radio galaxies*
Martijn S. S. L. Oei, Reinout J. van Weeren, Martin J. Hardcastle, Aivin R. D. J. G. I. B. Gast, Florent Leclercq, Huub J. A. Röttgering, Pratik Dabhade, Tim W. Shimwell, Andrea Botteon
2023, *Astronomy & Astrophysics,* Accepted

'23 **8.** *Constraining the giant radio galaxy population with machine learning–accelerated detection and Bayesian inference*
Martijn S. S. L. Oei†, Rafaël I. J. Mostert†, Bonny Barkus, Lara Alegre, Martin J. Hardcastle, Kenneth J. Duncan, Huub J. A. Röttgering, Reinout J. van Weeren, Maya Horton
2023, *Astronomy & Astrophysics,* Submitted

Above all, I have been a sentient being, a thinking animal, on this beautiful planet, and that in itself has been an enormous privilege and adventure.

Oliver W. Sacks, British neurologist and naturalist, in *The New York Times* essay *'My Own Life'* (2015)

11

Curriculum vitae

I was born in the Leiden University Medical Center (LUMC) on Saturday 2 October 1993 to my mother Antoinette Martine Maaike Kootte and my father Tjiauw Khing Oei, themselves both medics. My parents raised me in Oegstgeest, a town bordering Leiden and a place favoured to call home by many Leiden University academics.

In the autumn of 2005, I joined the Stedelijk Gymnasium Leiden — the high school of, among others, Rembrandt van Rijn, Herman Boerhaave, and Abraham Kuyper. I had great company, too. By introducing me to the world of computer programming and game design, my friend Jacob instilled in me the idea that, ultimately, hidden physical laws govern the world. On top of that, I had found an interest that was challenging on both a creative and a logical, mathematical level. With much joy and vigour, Jacob and I worked together on many ideas over our teenage years. Our works won national prizes. Thanks in part to popularisers of science, among them Stephen Hawking, I came to understand that physics addresses quantitatively many of the fundamental questions that so captured my imagination in my later high school years. It became clear, also, that physics and cosmology were inseparable.

In the autumn of 2011, I started the bachelor programmes Astronomy and Physics at Leiden University. With Jacob, and new friends Jos and Mel, I formed an invaluable bond through which we traversed the first academic years in Leiden. I wrote my bachelor thesis on simulating and building a prototype of a differential optical trans-

Figure 11.1: A visit to the Westerbork Synthesis Radio Telescope at Camp Westerbork, Drenthe, the Netherlands, in October 2016. This visit further fueled my interest in the field of radio astronomy.

fer function wavefront sensor. I was supervised by Professor Matthew Kenworthy of Leiden Observatory. Through this project, I know how exciting it can be to work on novel astronomical instrumentation. I obtained my bachelor degrees *cum laude*. I also completed the Honours College track Beta & Life Sciences.

In the autumn of 2014, I started the master's programme Research in Astronomy-Cosmology at Leiden University. I wrote two master theses: one on asteroseismology and one on radio astronomy. My first thesis concerned modelling asteroseismological activity on the surface of Beta Pictoris, a nearby, young star with at least two super-Jupiter planets. I worked on this project under the supervision of Professor Ignas Snellen of Leiden Observatory. I am still passionate about exoplanet research. My second thesis concerned, on the one hand, ionospheric calibration of visibility data from the Upgraded Giant Metrewave Radio Telescope (uGMRT), which by then was

still in active transformation from its GMRT origin. The goal of this project was to extend Huib Intema's SPAM pipeline (Intema et al., 2009b) for the GMRT to work for the uGMRT, preferably exploiting the latter's much wider frequency bands. Besides, the thesis concerned a statistical test of the alignment of radio galaxy jets with the filaments of the Cosmic Web in which they are often embedded. My supervisors were Huib Intema, Francesco de Gasperin, and Huub Röttgering. After completing my master's degree, I stayed at the institute over the summer of 2017 to continue working on radio astronomy. By this time, Reinout van Weeren returned to Leiden Observatory for a faculty position, and he started advising me on my research.

In the autumn of 2017, my academic *Bildung* continued overseas. I got admitted to Part III of the Mathematical Tripos at the University of Cambridge, a one-year intensive master's programme in mathematics with a history going back to the 18th century. I was part of Hughes Hall, but took up residence at Swirles Court of Girton College, which was close to the Centre for Mathematical Sciences (CMS). At the CMS, I took courses covering both theoretical physics and statistics. In particular Professor Kaisey Mandel's course *Astrostatistics*, which dealt with Gaussian processes, Markov chain Monte Carlo, and Bayesian inference (among other topics), has had a major influence on the choice of methodology used in this thesis. At the end of the year, in the summer of 2018, I decided to stay a few months longer in Cambridge to do research in biotechnology at the Wellcome Sanger Institute in Hixton, located well within the hilly Cambridgeshire countryside. At *Sanger*, under the supervision of Felicity Allen, I worked on data analysis for a series of CRISPR–Cas9 human gene editing experiments. The experiments were designed to map, and later predict, the mutations induced by the interplay of the Cas9 enzyme and cellular repair mechanisms as a function of the original target sequence.

In the autumn of 2018, after moving to Amsterdam, I started my PhD research on the intersection of radio astronomy and cosmology at Leiden Observatory. I was supervised by Assistant Professor Reinout van Weeren and Full Professor Huub Röttgering. The original research goal was to conduct a statistical experiment with LOFAR data in search of the synchrotron Cosmic Web. It were the inspiring exchanges with my friend and fellow PhD student Josh Albert and the serendipitious discovery of Alcyoneus that, in the end, made me divide my PhD time over studies of the ionosphere, the synchrotron Cosmic Web, and giant galactic outflows. In 2019, I was fortunate enough to visit the MWSKY-II conference in Pune, India, and Beijing Normal University in Beijing, China. Strikingly, when I travelled back home in December, the Chinese COVID-19 outbreak had already started. When the pandemic subsided, I held public talks for a primary school and for a club of astrophotography and astrophysics enthusiasts. In addition, my discovery of Alcyoneus (Chapter 4) unleashed a

larger than expected storm of media coverage, both nationally and internationally.

Over the years, I supervised the master theses of Akshatha Gopinath and Mel Voet, and helped teach the master's course *Radio Astronomy* in the academic years 2018–2019 and 2019–2020, and then the bachelor's course *Astronomical Observing Techniques* in the academic year 2020–2021. Meanwhile, my friend, housemate, and fellow PhD student Jari Gool and I started and completed a very enjoyable collaboration on clustering analysis applied to a large European dataset on patients with central disorders of hypersomnolence. The resulting article was published in *Neurology* and awarded a prize by the European Sleep Research Society at the Sleep Europe 2022 conference in Athens, Greece.

For the statistical analysis of giant galactic outflows presented in Chapter 6, I was selected as a finalist of the American Statistical Association's Astrostatistics Interest Group 2023 Student Paper Competition. In August 2023, I presented my work at the Joint Statistical Meetings in Toronto, Canada.

On 1 October 2023, the last day of my twenties, I started as the Prize Postdoctoral Scholar Research Associate in Observational Astronomy at the California Institute of Technology in Pasadena, United States of America. During my three-year postdoctoral fellowship at Caltech, I will continue my research on giant galactic outflows and shocks in the Cosmic Web. I very much look forward to this new life chapter in Greater Los Angeles — the *City of Stars*. ■

Figure 11.2: *Astronomer by Candlelight* by Gerard Dou (1613–1675), Rembrandt's first student. The transience of human life, symbolised by the hourglass and candle, contrasts with the astronomer's ambitious goal of understanding the largely unchanging, eternal heavens. Dou, born in Leiden, became the leader of the *fijnschilders*, a collective of Leiden painters known for their meticulous, naturalist style. This nocturnal astronomer's home is the Getty Center, J. Paul Getty Museum, Los Angeles.

I, a universe of atoms, an atom in the Universe.

Richard P. Feynman, American physicist, in *The Value of Science* (1955)

12 Acknowledgments

No major undertaking in life is ever the result of a single person's efforts, and PhDs are of course no exception. In both the recent and more distant past, I have been shaped, inspired, supported, and buoyed by many lovely people around me. Feeling at home in the world has been important, because the five years that separate the start of my time as a PhD student in September 2018 from my defence in December 2023 have been ones of great change. In the following, I want to briefly thank those directly involved in crafting this PhD thesis.

First of all, I want to thank you, Reinout, for five consistent years of inspiring and hugely helpful supervision. You care deeply about your students, and in guiding me through the scientific maturation process you, without a single exception, have put my interests first. Your advising style has always been clear, sincere, friendly, realistic, timely, and long-term minded. I also want to thank Huub for his personal support and supervision. As a leader, you are ambitious but realistic, effective, future-oriented, and refreshingly opinionated if needed. In our exchanges, I have always appreciated your wit and humour. I was fortunate to count on you in all the happy *and* the less happy moments — whether through a message, call, or video, you were always there when difficulty arose — director of Leiden Observatory or not. As the focus of the PhD shifted towards giant galactic outflows, I had the luck to start collaborating with Martin Hardcastle, one of the world's principal experts on giants. Martin, thank you for your generosity in answering the many questions that I have been ask-

ing you and for important comments and suggestions on the various articles that we have now published together. Your seemingly effortless proficiency in the reduction and interpretation of observations, analytical models, *and* numerical simulations is inspiring. Among my peers at Leiden Observatory, my friend Josh Albert has been particularly influential. Josh, you elevated my days at our joint office, by raising interesting discussions and by introducing me to demanding mathematics. You are not only very gifted, but also creative, kind, and thoughtful. I am proud of the article we wrote (Chapter 2). I am also glad for the friendship of Rafaël Mostert and Frits Sweijen, both of whom started their PhD trajectories at a similar time. Rafaël, during the last months of the PhD, I have much enjoyed our collaboration on our theses' last article (Chapter 8). This reminded me of how energising the creation of a joint scientific work can be — symbolically, linking the final experience of my PhD to my first. I would also like to thank my friend Aivin Gast for his important contribution to discovering thousands of previously unknown, angularly extended giants in the LoTSS (Chapter 6), and for providing extensive further support in writing the ensuing articles. I want to thank Jacob, Jos, and Mel, which whom I formed an invaluable quartet, dubbed the *Feyne Mannen*, during the first academic years in Leiden. Jacob, I want to thank you especially for being there whenever I need it, for your encouragement and heartfelt involvement in my PhD trajectory, and for your consistently wise advice. Jos, you do not only provide comforting companionship and much laughter, but you also constantly encourage me to keep appreciating the grandeur and mystery of the subject matter of mathematics, physics, and astronomy. Finally I adress Mel, my fellow astrophysicist. I want to explicitly thank you for your friendship, informed and interesting perspectives, and sincere interest in my PhD work. I want to thank my housemates Gerwin, Jari, Ties, Guus, Melle, and László, with whom I had the pleasure to spend various periods of my five-year residence at our beautiful penthouse *'the Titus'* in Amsterdam. You have made me feel at home in the fast-paced (or locked-down) city around us. Thank you, Jari, for keeping me company on countless nights while you worked on your PhD. You would often have interesting stories or funny remarks ready, which you would sprinkle through the peaceful quiet that marked these thoroughly cosy nights. Besides, I have also much enjoyed the scientific project we have forged together. Sharing research experiences and perspectives with eachother has had a positive impact on my wellbeing and scientific maturation. I have greatly enjoyed our days at the Titus too, Guus, for the same reason. I also consider invaluable the warm support and intellectual inspiration of Aurelie, Carli, Floris, Jelle, Jesse, Lara, Mattheus, Rogier, Sam, Tim, and Willem. Many others have supported me greatly. Finally, I thank my family for standing by me throughout the PhD process. I am especially endebted to my mum, for her unabated support.

Bibliography

1. Abazajian, K. N., Adelman-McCarthy, J. K., Agüeros, M. A., Allam, S. S., Allende Prieto, C., An, D., Anderson, K. S. J., Anderson, S. F., Annis, J., Bahcall, N. A., Bailer-Jones, C. A. L., Barentine, J. C., Bassett, B. A., Becker, A. C., Beers, T. C., Bell, E. F., Belokurov, V., Berlind, A. A., Berman, E. F., Bernardi, M., Bickerton, S. J., Bizyaev, D., Blakeslee, J. P., Blanton, M. R., Bochanski, J. J., Boroski, W. N., Brewington, H. J., Brinchmann, J., Brinkmann, J., Brunner, R. J., Budavári, T., Carey, L. N., Carliles, S., Carr, M. A., Castander, F. J., Cinabro, D., Connolly, A. J., Csabai, I., Cunha, C. E., Czarapata, P. C., Davenport, J. R. A., de Haas, E., Dilday, B., Doi, M., Eisenstein, D. J., Evans, M. L., Evans, N. W., Fan, X., Friedman, S. D., Frieman, J. A., Fukugita, M., Gänsicke, B. T., Gates, E., Gillespie, B., Gilmore, G., Gonzalez, B., Gonzalez, C. F., Grebel, E. K., Gunn, J. E., Györy, Z., Hall, P. B., Harding, P., Harris, F. H., Harvanek, M., Hawley, S. L., Hayes, J. J. E., Heckman, T. M., Hendry, J. S., Hennessy, G. S., Hindsley, R. B., Hoblitt, J., Hogan, C. J., Hogg, D. W., Holtzman, J. A., Hyde, J. B., Ichikawa, S.-i., Ichikawa, T., Im, M., Ivezić, Ž., Jester, S., Jiang, L., Johnson, J. A., Jorgensen, A. M., Jurić, M., Kent, S. M., Kessler, R., Kleinman, S. J., Knapp, G. R., Konishi, K., Kron, R. G., Krzesinski, J., Kuropatkin, N., Lampeitl, H., Lebedeva, S., Lee, M. G., Lee, Y. S., French Leger, R., Lépine, S., Li, N., Lima, M., Lin, H., Long, D. C., Loomis, C. P., Loveday, J., Lupton, R. H., Magnier, E., Malanushenko, O., Malanushenko, V., Mand elbaum, R., Margon, B., Marriner, J. P., Martínez-Delgado, D., Matsubara, T., McGehee, P. M., McKay, T. A., Meiksin, A., Morrison, H. L., Mullally, F., Munn, J. A., Murphy, T., Nash, T., Nebot, A., Neilsen, Eric H., J., Newberg, H. J., Newman, P. R., Nichol, R. C., Nicinski, T., Nieto-Santisteban, M., Nitta, A., Okamura, S., Oravetz, D. J., Ostriker, J. P., Owen, R., Padmanabhan, N., Pan, K., Park, C., Pauls, G., Peoples, John, J., Percival, W. J., Pier, J. R., Pope, A. C., Pourbaix, D., Price, P. A., Purger, N., Quinn, T., Raddick, M. J., Re Fiorentin, P., Richards, G. T., Richmond, M. W., Riess, A. G., Rix, H.-W., Rockosi, C. M., Sako, M., Schlegel, D. J., Schneider, D. P., Scholz, R.-D., Schreiber, M. R., Schwope, A. D., Seljak, U., Sesar, B., Sheldon, E., Shimasaku, K., Sibley, V. C., Simmons, A. E., Sivarani, T., Allyn Smith, J., Smith, M. C., Smolčić, V., Snedden, S. A., Stebbins, A., Steinmetz, M., Stoughton, C., Strauss, M. A., SubbaRao, M., Suto, Y., Szalay, A. S., Szapudi, I., Szkody, P., Tanaka, M., Tegmark, M., Teodoro, L. F. A., Thakar, A. R., Tremonti, C. A., Tucker, D. L., Uomoto, A., Vanden Berk, D. E., Vandenberg, J., Vidrih, S., Vogeley, M. S., Voges, W., Vogt, N. P., Wadadekar, Y., Watters, S., Weinberg, D. H., West, A. A., White, S. D. M., Wilhite, B. C., Wonders, A. C., Yanny, B., Yocum, D. R., York, D. G., Zehavi, I., Zibetti, S., & Zucker, D. B. (2009). The Seventh Data Release of the Sloan Digital Sky Survey. ApJS, 182(2), 543–558.

2. Acciari, V. A., Agudo, I., Aniello, T., Ansoldi, S., Antonelli, L. A., Arbet Engels, A., Artero, M., Asano, K., Baack, D., Babić, A., Baquero, A., Barres de Almeida, U., Barrio, J. A., Batković, I., Becerra González, J., Bednarek, W., Bernardini, E., Bernardos, M., Berti, A., Besenrieder, J., Bhattacharyya, W., Bigongiari, C., Biland, A., Blanch, O., Bökenkamp, H., Bonnoli, G., Bošnjak, Ž., Burelli, I., Busetto, G., Carosi, R., Ceribella, G., Cerruti, M., Chai, Y., Chilingarian, A., Cikota, S., Colombo, E., Contreras, J. L., Cortina, J., Covino, S., D'Amico, G., D'Elia, V., da Vela, P., Dazzi, F., de Angelis, A., de Lotto, B., Del Popolo, A., Delfino, M., Delgado, J., Delgado Mendez, C., Depaoli, D., di Pierro, F., di Venere, L., Do Souto Espiñeira, E., Dominis Prester, D., Donini, A., Dorner, D., Doro, M., Elsaesser, D., Fallah Ramazani, V., Fariña, L., Fattorini, A., Font, L., Fruck, C., Fukami, S., Fukazawa, Y., García López, R. J., Garczarczyk, M., Gasparyan, S., Gaug, M., Giglietto, N., Giordano, F., Gliwny, P., Godinović, N., Green, J. G., Green, D., Hadasch, D., Hahn, A., Hassan, T., Heckmann, L., Herrera, J., Hrupec, D., Hütten, M., Inada, T., Iotov, R., Ishio, K., Iwamura, Y., Jiménez Martínez, I., Jormanainen, J., Jouvin, L., Kerszberg, D., Kobayashi, Y., Kubo, H., Kushida, J., Lamastra, A., Lelas, D., Leone, F., Lindfors, E., Linhoff, L., Liodakis, I., Lombardi, S., Longo, F., López-Coto, R., López-Moya, M., López-Oramas, A., Loporchio, S., Lorini, A., Machado de Oliveira Fraga, B., Maggio, C., Majumdar, P., Makariev, M., Mallamaci, M., Maneva, G., Manganaro, M., Mannheim, K., Mariotti, M., Martínez, M., Mas Aguilar, A., Mazin, D., Menchiari, S., Mender, S., Mićanović, S., Miceli, D., Miener, T., Miranda, J. M., Mirzoyan, R., Molina, E., Mondal, H. A., Moralejo, A., Morcuende, D., Moreno, V., Moretti, E., Nakamori, T., Nanci, C., Nava, L., Neustroev, V., Nievas Rosillo, M., Nigro, C., Nilsson, K., Nishijima, K., Noda, K., Nozaki, S., Ohtani, Y., Oka, T., Otero-Santos, J., Paiano, S., Palatiello, M., Paneque, D., Paoletti, R., Paredes, J. M., Pavletić, L., Peñil, P., Persic, M., Pihet, M., Prada Moroni, P. G., Prandini, E., Priyadarshi, C., Puljak, I., Rhode, W., Ribó, M., Rico, J., Righi, C., Rugliancich, A., Sahakyan, N., Saito, T., Sakurai, S., Satalecka, K., Saturni, F. G., Schleicher, B., Schmidt, K., Schmuckermaier, F., Schubert, J. L., Schweizer, T., Sitarek, J., Šnidarić, I., Sobczynska, D., Spolon, A.,

Stamerra, A., Strišković, J., Strom, D., Strzys, M., Suda, Y., Surić, T., Takahashi, M., Takeishi, R., Tavecchio, F., Temnikov, P., Terzić, T., Teshima, M., Tosti, L., Truzzi, S., Tutone, A., Ubach, S., van Scherpenberg, J., Vanzo, G., Vazquez Acosta, M., Ventura, S., Verguilov, V., Viale, I., Vigorito, C. F., Vitale, V., Vovk, I., Will, M., Wunderlich, C., Yamamoto, T., Zarić, D., & MAGIC Collaboration (2023). A lower bound on intergalactic magnetic fields from time variability of 1ES 0229+200 from MAGIC and Fermi/LAT observations. A&A, 670, A145.

3. Ahn, C. P., Alexandroff, R., Allende Prieto, C., Anderson, S. F., Anderton, T., Andrews, B. H., Aubourg, É., Bailey, S., Balbinot, E., Barnes, R., Bautista, J., Beers, T. C., Beifiori, A., Berlind, A. A., Bhardwaj, V., Bizyaev, D., Blake, C. H., Blanton, M. R., Blomqvist, M., Bochanski, J. J., Bolton, A. S., Borde, A., Bovy, J., Brandt, W. N., Brinkmann, J., Brown, P. J., Brownstein, J. R., Bundy, K., Busca, N. G., Carithers, W., Carnero, A. R., Carr, M. A., Casetti-Dinescu, D. I., Chen, Y., Chiappini, C., Comparat, J., Connolly, N., Crepp, J. R., Cristiani, S., Croft, R. A. C., Cuesta, A. J., da Costa, L. N., Davenport, J. R. A., Dawson, K. S., de Putter, R., De Lee, N., Delubac, T., Dhital, S., Ealet, A., Ebelke, G. L., Edmondson, E. M., Eisenstein, D. J., Escoffier, S., Esposito, M., Evans, M. L., Fan, X., Femenía Castellá, B., Fernández Alvar, E., Ferreira, L. D., Filiz Ak, N., Finley, H., Fleming, S. W., Font-Ribera, A., Frinchaboy, P. M., García-Hernández, D. A., García Pérez, A. E., Ge, J., Génova-Santos, R., Gillespie, B. A., Girardi, L., González Hernández, J. I., Grebel, E. K., Gunn, J. E., Guo, H., Haggard, D., Hamilton, J.-C., Harris, D. W., Hawley, S. L., Hearty, F. R., Ho, S., Hogg, D. W., Holtzman, J. A., Honscheid, K., Huehnerhoff, J., Ivans, I. I., Ivezić, Ž., Jacobson, H. R., Jiang, L., Johansson, J., Johnson, J. A., Kauffmann, G., Kirkby, D., Kirkpatrick, J. A., Klaene, M. A., Knapp, G. R., Kneib, J.-P., Le Goff, J.-M., Leauthaud, A., Lee, K.-G., Lee, Y. S., Long, D. C., Loomis, C. P., Lucatello, S., Lundgren, B., Lupton, R. H., Ma, B., Ma, Z., MacDonald, N., Mack, C. E., Mahadevan, S., Maia, M. A. G., Majewski, S. R., Makler, M., Malanushenko, E., Malanushenko, V., Manchado, A., Mandelbaum, R., Manera, M., Maraston, C., Margala, D., Martell, S. L., McBride, C. K., McGreer, I. D., McMahon, R. G., Ménard, B., Meszaros, S., Miralda-Escudé, J., Montero-Dorta, A. D., Montesano, F., Morrison, H. L., Muna, D., Munn, J. A., Murayama, H., Myers, A. D., Neto, A. F., Nguyen, D. C., Nichol, R. C., Nidever, D. L., Noterdaeme, P., Nuza, S. E., Ogando, R. L. C., Olmstead, M. D., Oravetz, D. J., Owen, R., Padmanabhan, N., Palanque-Delabrouille, N., Pan, K., Parejko, J. K., Parihar, P., Pâris, I., Pattarakijwanich, P., Pepper, J., Percival, W. J., Pérez-Fournon, I., Pérez-Ràfols, I., Petitjean, P., Pforr, J., Pieri, M. M., Pinsonneault, M. H., Porto de Mello, G. F., Prada, F., Price-Whelan, A. M., Raddick, M. J., Rebolo, R., Rich, J., Richards, G. T., Robin, A. C., Rocha-Pinto, H. J., Rockosi, C. M., Roe, N. A., Ross, A. J., Ross, N. P., Rossi, G., Rubiño-Martin, J. A., Samushia, L., Sanchez Almeida, J., Sánchez, A. G., Santiago, B., Sayres, C., Schlegel, D. J., Schlesinger, K. J., Schmidt, S. J., Schneider, D. P., Schultheis, M., Schwope, A. D., Scóccola, C. G., Seljak, U., Sheldon, E., Shen, Y., Shu, Y., Simmerer, J., Simmons, A. E., Skibba, R. A., Skrutskie, M. F., Slosar, A., Sobreira, F., Sobeck, J. S., Stassun, K. G., Steele, O., Steinmetz, M., Strauss, M. A., Streblyanska, A., Suzuki, N., Swanson, M. E. C., Tal, T., Thakar, A. R., Thomas, D., Thompson, B. A., Tinker, J. L., Tojeiro, R., Tremonti, C. A., Vargas Magaña, M., Verde, L., Viel, M., Vikas, S. K., Vogt, N. P., Wake, D. A., Wang, J., Weaver, B. A., Weinberg, D. H., Weiner, B. J., West, A. A., White, M., Wilson, J. C., Wisniewski, J. P., Wood-Vasey, W. M., Yanny, B., Yèche, C., York, D. G., Zamora, O., Zasowski, G., Zehavi, I., Zhao, G.-B., Zheng, Z., Zhu, G., & Zinn, J. C. (2012). The Ninth Data Release of the Sloan Digital Sky Survey: First Spectroscopic Data from the SDSS-III Baryon Oscillation Spectroscopic Survey. ApJS, 203(2), 21.

4. Alam, S., Albareti, F. D., Prieto, C. A., Anders, F., Anderson, S. F., Anderton, T., Andrews, B. H., Armengaud, E., Aubourg, É., Bailey, S., Basu, S., Bautista, J. E., Beaton, R. L., Beers, T. C., Bender, C. F., Berlind, A. A., Beutler, F., Bhardwaj, V., Bird, J. C., Bizyaev, D., Blake, C. H., Blanton, M. R., Blomqvist, M., Bochanski, J. J., Bolton, A. S., Bovy, J., Bradley, A. S., Brandt, W. N., Brauer, D. E., Brinkmann, J., Brown, P. J., Brownstein, J. R., Burden, A., Burtin, E., Busca, N. G., Cai, Z., Capozzi, D., Rosell, A. C., Carr, M. A., Carrera, R., Chambers, K. C., Chaplin, W. J., Chen, Y.-C., Chiappini, C., Chojnowski, S. D., Chuang, C.-H., Clerc, N., Comparat, J., Covey, K., Croft, R. A. C., Cuesta, A. J., Cunha, K., da Costa, L. N., Rio, N. D., Davenport, J. R. A., Dawson, K. S., Lee, N. D., Delubac, T., Deshpande, R., Dhital, S., Dutra-Ferreira, L., Dwelly, T., Ealet, A., Ebelke, G. L., Edmondson, E. M., Eisenstein, D. J., Ellsworth, T., Elsworth, Y., Epstein, C. R., Eracleous, M., Escoffier, S., Esposito, M., Evans, M. L., Fan, X., Fernández-Alvar, E., Feuillet, D., Ak, N. F., Finley, H., Finoguenov, A., Flaherty, K., Fleming, S. W., Font-Ribera, A., Foster, J., Frinchaboy, P. M., Galbraith-Frew, J. G., García, R. A., García-Hernández, D. A., Pérez, A. E. G., Gaulme, P., Ge, J., Génova-Santos, R., Georgakakis, A., Ghezzi, L., Gillespie, B. A., Girardi, L., Goddard, D., Gontcho, S. G. A., Hernández, J. I. G., Grebel, E. K., Green, P. J., Grieb, J. N., Grieves, N., Gunn, J. E., Guo, H., Harding, P., Hasselquist, S., Hawley, S. L., Hayden, M., Hearty, F. R., Hekker, S., Ho, S., Hogg, D. W., Holley-Bockelmann, K., Holtzman, J. A., Honscheid, K., Huber, D., Huehnerhoff, J., Ivans, I. I., Jiang, L., Johnson, J. A., Kinemuchi, K., Kirkby, D., Kitaura, F., Klaene, M. A., Knapp, G. R., Kneib, J.-P., Koenig, X. P., Lam, C. R., Lan, T.-W., Lang, D., Laurent, P., Goff, J.-M. L., Leauthaud, A., Lee, K.-G., Lee, Y. S., Licquia, T. C., Liu, J., Long, D. C., López-Corredoira, M., Lorenzo-Oliveira, D., Lucatello, S., Lundgren, B., Lupton, R. H., III, C. E. M., Mahadevan, S., Maia, M. A. G., Majewski, S. R., Malanushenko, E., Malanushenko, V., Manchado, A., Manera, M., Mao, Q., Maraston, C., Marchwinski, R. C., Margala, D., Martell, S. L., Martig, M., Masters, K. L., Mathur, S., McBride, C. K., McGehee, P. M., McGreer, I. D., McMahon, R. G., Ménard, B., Menzel, M.-L., Merloni, A., Mészáros, S., Miller, A. A., Miralda-Escudé, J., Miyatake, H., Montero-Dorta, A. D., More, S., Morganson, E., Morice-Atkinson, X., Morrison, H. L., Mosser, B., Muna, D., Myers, A. D., Nandra, K., Newman, J. A., Neyrinck, M., Nguyen, D. C., Nichol, R. C., Nidever,

D. L., Noterdaeme, P., Nuza, S. E., O'Connell, J. E., O'Connell, R. W., O'Connell, R., Ogando, R. L. C., Olmstead, M. D., Oravetz, A. E., Oravetz, D. J., Osumi, K., Owen, R., Padgett, D. L., Padmanabhan, N., Paegert, M., Palanque-Delabrouille, N., Pan, K., Parejko, J. K., Pâris, I., Park, C., Pattarakijwanich, P., Pellejero-Ibanez, M., Pepper, J., Percival, W. J., Pérez-Fournon, I., Pe′rez-Ra`fols, I., Petitjean, P., Pieri, M. M., Pinsonneault, M. H., de Mello, G. F. P., Prada, F., Prakash, A., Price-Whelan, A. M., Protopapas, P., Raddick, M. J., Rahman, M., Reid, B. A., Rich, J., Rix, H.-W., Robin, A. C., Rockosi, C. M., Rodrigues, T. S., Rodríguez-Torres, S., Roe, N. A., Ross, A. J., Ross, N. P., Rossi, G., Ruan, J. J., Rubiño-Martín, J. A., Rykoff, E. S., Salazar-Albornoz, S., Salvato, M., Samushia, L., Sánchez, A. G., Santiago, B., Sayres, C., Schiavon, R. P., Schlegel, D. J., Schmidt, S. J., Schneider, D. P., Schultheis, M., Schwope, A. D., Scóccola, C. G., Scott, C., Sellgren, K., Seo, H.-J., Serenelli, A., Shane, N., Shen, Y., Shetrone, M., Shu, Y., Aguirre, V. S., Sivarani, T., Skrutskie, M. F., Slosar, A., Smith, V. V., Sobreira, F., Souto, D., Stassun, K. G., Steinmetz, M., Stello, D., Strauss, M. A., Streblyanska, A., Suzuki, N., Swanson, M. E. C., Tan, J. C., Tayar, J., Terrien, R. C., Thakar, A. R., Thomas, D., Thomas, N., Thompson, B. A., Tinker, J. L., Tojeiro, R., Troup, N. W., Vargas-Magaña, M., Vazquez, J. A., Verde, L., Viel, M., Vogt, N. P., Wake, D. A., Wang, J., Weaver, B. A., Weinberg, D. H., Weiner, B. J., White, M., Wilson, J. C., Wisniewski, J. P., Wood-Vasey, W. M., Ye`che, C., York, D. G., Zakamska, N. L., Zamora, O., Zasowski, G., Zehavi, I., Zhao, G.-B., Zheng, Z., (周旭), X. Z., (周志民), Z. Z., (邹虎), H. Z., & Zhu, G. (2015). The Eleventh and Twelfth Data Releases of the Sloan Digital Sky Survey: Final Data from SDSS-III. *ApJSS*, 219(1), 12.

5. Alegre, L., Sabater, J., Best, P., Mostert, R. I. J., Williams, W. L., Gürkan, G., Hardcastle, M. J., Kondapally, R., Shimwell, T. W., & Smith, D. J. B. (2022). A machine-learning classifier for LOFAR radio galaxy cross-matching techniques. MNRAS, 516(4), 4716–4738.

6. Altman, C. & Suchy, K. (2011). *Reciprocity, Spatial Mapping and Time Reversal in Electromagnetics*. Dordrecht: Springer.

7. Amirkhanyan, V. R. (2016). Radiation pattern of radio and optical components of extended radio sources. *Astrophysical Bulletin*, 71(4), 384–394.

8. Andernach, H., Feretti, L., Giovannini, G., Klein, U., Rossetti, E., & Schnaubelt, J. (1992). The large-scale radio structure of 3C 31 and 3C 449. A&AS, 93, 331–357.

9. Andernach, H., Jiménez-Andrade, E. F., & Willis, A. G. (2021). Discovery of 178 Giant Radio Galaxies in 1059 deg^2 of the Rapid ASKAP Continuum Survey at 888 MHz. *Galaxies*, 9(4), 99.

10. Anduaga, A. (2021). The formation of ionospheric physics - confluence of traditions and threads of continuity. *History of Geo- and Space Sciences*, 12(1), 57–75.

11. Angulo, R. E., Springel, V., White, S. D. M., Jenkins, A., Baugh, C. M., & Frenk, C. S. (2012). Scaling relations for galaxy clusters in the Millennium-XXL simulation. MNRAS, 426(3), 2046–2062.

12. Araya-Melo, P. A., Aragón-Calvo, M. A., Brüggen, M., & Hoeft, M. (2012). Radio emission in the cosmic web. MNRAS, 423(3), 2325–2341.

13. Arnaud, M. (2009). The β-model of the intracluster medium. Commentary on: Cavaliere A. and Fusco-Femiano R., 1976, A&A, 49, 137. A&A, 500(1), 103–104.

14. Arora, B. S., Morgan, J., Ord, S. M., Tingay, S. J., Bell, M., Callingham, J. R., Dwarakanath, K. S., For, B. Q., Hancock, P., Hindson, L., Hurley-Walker, N., Johnston-Hollitt, M., Kapińska, A. D., Lenc, E., McKinley, B., Offringa, A. R., Procopio, P., Staveley-Smith, L., Wayth, R. B., Wu, C., & Zheng, Q. (2016). Ionospheric Modelling using GPS to Calibrate the MWA. II: Regional Ionospheric Modelling using GPS and GLONASS to Estimate Ionospheric Gradients. PASA, 33, e031.

15. Attia, O., Teyssier, R., Katz, H., Kimm, T., Martin-Alvarez, S., Ocvirk, P., & Rosdahl, J. (2021). Cosmological magnetogenesis: the Biermann battery during the Epoch of Reionization. *Monthly notices of the Royal Astronomical Society*, 504(2), 2346–2359.

16. Axford, W. I., Leer, E., & Skadron, G. (1977). The Acceleration of Cosmic Rays by Shock Waves. In *International Cosmic Ray Conference*, volume 11 of *International Cosmic Ray Conference* (pp. 132).

17. Bagchi, J., Vivek, M., Vikram, V., Hota, A., Biju, K. G., Sirothia, S. K., Srianand, R., Gopal-Krishna, & Jacob, J. (2014). Megaparsec Relativistic Jets Launched from an Accreting Supermassive Black Hole in an Extreme Spiral Galaxy. ApJ, 788(2), 174.

18. Baring, M. G. (1997). Diffusive Shock Acceleration : the Fermi Mechanism. In Y. Giraud-Heraud & J. Tran Thanh van (Eds.), *Very High Energy Phenomena in the Universe; Moriond Workshop* (pp.97).

19. Barkus, B., Croston, J. H., Piotrowska, J., Mingo, B., Best, P. N., Hardcastle, M. J., Mostert, R. I. J., Röttgering, H. J. A., Sabater, J., Webster, B., & Williams, W. L. (2022). The application of ridgelines in extended radio source cross-identification. MNRAS, 509(1), 1–15.

20. Barrow, J. D., Tsagas, C. G., & Yamamoto, K. (2012). Origin of cosmic magnetic fields: Superadiabatically amplified modes in open Friedmann universes. Phys. Rev. D, 86(2), 023533.

21. Bassani, L., Ursini, F., Malizia, A., Bruni, G., Panessa, F., Masetti, N., Saviane, I., Monaco, L., Venturi, T., Dallacasa, D., Bazzano, A., & Ubertini, P. (2021). Soft gamma-ray selected giant radio galaxies: an update. MNRAS, 500(3), 3111–3122.

22. Beck, R. & Krause, M. (2005). Revised equipartition and minimum energy formula for magnetic field strength estimates from radio synchrotron observations. *Astronomische Nachrichten*, 326(6), 414–427.

23. Beckmann, R. S., Devriendt, J., Slyz, A., Peirani, S., Richardson, M. L. A., Dubois, Y., Pichon, C., Chisari, N. E., Kaviraj, S., Laigle, C., & Volonteri, M. (2017). Cosmic evolution of stellar quenching by AGN feedback: clues from the Horizon-AGN simulation. *Monthly Notices of the Royal Astronomical Society*, 472(1), 949–965.

24. Bédard, M. (2008). Optimal acceptance rates for Metropolis algorithms: Moving beyond 0.234. *Stochastic Processes and their Applications*, 118(12), 2198–2222.

25. Behroozi, P. S., Wechsler, R. H., & Conroy, C. (2013). The Average Star Formation Histories of Galaxies in Dark Matter Halos from z = 0-8. ApJ, 770(1), 57.

26. Bell, A. R. (1978a). The acceleration of cosmic rays in shock fronts - I. MNRAS, 182, 147–156.

27. Bell, A. R. (1978b). The acceleration of cosmic rays in shock fronts - II. MNRAS, 182, 443–455.

28. Benatar, D. (2006). *Better Never to Have Been: The Harm of Coming into Existence*. Oxford: Oxford University Press.

29. Best, P. N. & Heckman, T. M. (2012). On the fundamental dichotomy in the local radio-AGN population: accretion, evolution and host galaxy properties. MNRAS, 421(2), 1569–1582.

30. Best, P. N., Ker, L. M., Simpson, C., Rigby, E. E., & Sabater, J. (2014). The cosmic evolution of radio-AGN feedback to $z = 1$. MNRAS, 445(1), 955–969.

31. Bilitza, D. & Reinisch, B. W. (2008). International Reference Ionosphere 2007: Improvements and new parameters. *Advances in Space Research*, 42, 599–609.

32. Biretta, J. A., Zhou, F., & Owen, F. N. (1995). Detection of Proper Motions in the M87 Jet. ApJ, 447, 582.

33. Blandford, R. & Eichler, D. (1987). Particle acceleration at astrophysical shocks: A theory of cosmic ray origin. Phys. Rep., 154(1), 1–75.

34. Blandford, R., Meier, D., & Readhead, A. (2019). Relativistic Jets from Active Galactic Nuclei. ARA&A, 57, 467–509.

35. Blandford, R. D. & Ostriker, J. P. (1978). Particle acceleration by astrophysical shocks. ApJ, 221, L29–L32.

36. Blandford, R. D. & Rees, M. J. (1974). A "twin-exhaust" model for double radio sources. MNRAS, 169, 395–415.

37. Blandford, R. D. & Znajek, R. L. (1977). Electromagnetic extraction of energy from Kerr black holes. MNRAS, 179, 433–456.

38. Bloom, J. S., Frail, D. A., & Sari, R. (2001). The Prompt Energy Release of Gamma-Ray Bursts using a Cosmological k-Correction. AJ, 121(6), 2879–2888.

39. Boch, T. & Fernique, P. (2014). Aladin Lite: Embed your Sky in the Browser. In N. Manset & P. Forshay (Eds.), *Astronomical Data Analysis Software and Systems XXIII*, volume 485 of *Astronomical Society of the Pacific Conference Series* (pp. 277).

40. Bolton, J. G. (1948). Discrete Sources of Galactic Radio Frequency Noise. Nature, 162(4108), 141–142.

41. Bonnarel, F., Fernique, P., Bienaymé, O., Egret, D., Genova, F., Louys, M., Ochsenbein, F., Wenger, M., & Bartlett, J. G. (2000). The ALADIN interactive sky atlas. A reference tool for identification of astronomical sources. A&AS, 143, 33–40.

42. Bos, E. G. P., Kitaura, F.-S., & van de Weygaert, R. (2019). Bayesian cosmic density field inference from redshift space dark matter maps. MNRAS, 488(2), 2573–2604.

43. Botteon, A., Brunetti, G., van Weeren, R. J., Shimwell, T. W., Pizzo, R. F., Cassano, R., Iacobelli, M., Gastaldello, F., Bîrzan, L., Bonafede, A., Brüggen, M., Cuciti, V., Dallacasa, D., de Gasperin, F., Di Gennaro, G., Drabent, A., Hardcastle, M. J., Hoeft, M., Mandal, S., Röttgering, H. J. A., & Simionescu, A. (2020a). The Beautiful Mess in Abell 2255. ApJ, 897(1), 93.

44. Botteon, A., Shimwell, T. W., Bonafede, A., Dallacasa, D., Brunetti, G., Mandal, S., van Weeren, R. J., Brüggen, M., Cassano, R., de Gasperin, F., Hoang, D. N., Hoeft, M., Röttgering, H. J. A., Savini, F., White, G. J., Wilber, A., & Venturi, T. (2018). LOFAR discovery of a double radio halo system in Abell 1758 and radio/X-ray study of the cluster pair. MNRAS, 478(1), 885–898.

45. Botteon, A., van Weeren, R. J., Brunetti, G., de Gasperin, F., Intema, H. T., Osinga, E., Di Gennaro, G., Shimwell, T. W., Bonafede, A., Brüggen, M., Cassano, R., Cuciti, V., Dallacasa, D., Gastaldello, F., Mandal, S., Rossetti, M., & Röttgering, H. J. A. (2020b). A giant radio bridge connecting two galaxy clusters in Abell 1758. MNRAS, 499(1), L11–L15.

46. Botteon, A., van Weeren, R. J., Brunetti, G., Vazza, F., Shimwell, T. W., Brüggen, M., Röttgering, H. J. A., de Gasperin, F., Akamatsu, H., Bonafede, A., Cassano, R., Cuciti, V., Dallacasa, D., Gennaro, G. D., & Gastaldello, F. (2022). Magnetic

fields and relativistic electrons fill entire galaxy cluster. *Science Advances*, 8(44), eabq7623.

47. Bouchet, F. R., Colombi, S., Hivon, E., & Juszkiewicz, R. (1995). Perturbative Lagrangian approach to gravitational instability. A&A, 296, 575.

48. Bouman, K. L., Johnson, M. D., Zoran, D., Fish, V. L., Doeleman, S. S., & Freeman, W. T. (2016). Computational Imaging for VLBI Image Reconstruction. In *The IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*.

49. Boxelaar, J. M., van Weeren, R. J., & Botteon, A. (2021). A robust model for flux density calculations of radio halos in galaxy clusters: Halo-FDCA. *Astronomy and Computing*, 35, 100464.

50. Brandenburg, A. & Subramanian, K. (2005). Astrophysical magnetic fields and nonlinear dynamo theory. *Physics Reports*, 417(1), 1–209.

51. Bregman, J. N. & Irwin, J. A. (2007). The Search for Million Degree Gas through the N VII Hyperfine Line. ApJ, 666(1), 139–146.

52. Breiman, L. (1997). *Arcing the edge*. Technical report, Citeseer.

53. Brown, S., Vernstrom, T., Carretti, E., Dolag, K., Gaensler, B. M., Staveley-Smith, L., Bernardi, G., Haverkorn, M., Kesteven, M., & Poppi, S. (2017). Limiting magnetic fields in the cosmic web with diffuse radio emission. MNRAS, 468(4), 4246–4253.

54. Brüggen, M., Reiprich, T. H., Bulbul, E., Koribalski, B. S., Andernach, H., Rudnick, L., Hoang, D. N., Wilber, A. G., Duchesne, S. W., Veronica, A., Pacaud, F., Hopkins, A. M., Norris, R. P., Johnston-Hollitt, M., Brown, M. J. I., Bonafede, A., Brunetti, G., Collier, J. D., Sanders, J. S., Vardoulaki, E., Venturi, T., Kapinska, A. D., & Marvil, J. (2021). Radio observations of the merging galaxy cluster system Abell 3391-Abell 3395. A&A, 647, A3.

55. Brunetti, G., Setti, G., Feretti, L., & Giovannini, G. (2001). Particle reacceleration in the Coma cluster: radio properties and hard X-ray emission. MNRAS, 320(3), 365–378.

56. Brunetti, G. & Vazza, F. (2020). Second-order Fermi Reacceleration Mechanisms and Large-Scale Synchrotron Radio Emission in Intracluster Bridges. *Phys. Rev. Lett.*, 124, 051101.

57. Bryan, G. L., Norman, M. L., O'Shea, B. W., Abel, T., Wise, J. H., Turk, M. J., Reynolds, D. R., Collins, D. C., Wang, P., Skillman, S. W., Smith, B., Harkness, R. P., Bordner, J., Kim, J.-h., Kuhlen, M., Xu, H., Goldbaum, N., Hummels, C., Kritsuk, A. G., Tasker, E., Skory, S., Simpson, C. M., Hahn, O., Oishi, J. S., So, G. C., Zhao, F., Cen, R., Li, Y., & Enzo Collaboration (2014). ENZO: An Adaptive Mesh Refinement Code for Astrophysics. ApJS, 211(2), 19.

58. Burbidge, G. R. (1956). On Synchrotron Radiation from Messier 87. ApJ, 124, 416.

59. Byrd, R., Lu, P., Nocedal, J., & Zhu, C. (1995). A limited memory algorithm for bound constrained optimization. *SIAM Journal on Scientific Computing*, 16(5), 1190–1208.

60. Cantwell, T. M., Bray, J. D., Croston, J. H., Scaife, A. M. M., Mulcahy, D. D., Best, P. N., Brüggen, M., Brunetti, G., Callingham, J. R., Clarke, A. O., Hardcastle, M. J., Harwood, J. J., Heald, G., Heesen, V., Iacobelli, M., Jamrozy, M., Morganti, R., Orrú, E., O'Sullivan, S. P., Riseley, C. J., Röttgering, H. J. A., Shulevski, A., Sridhar, S. S., Tasse, C., & Van Eck, C. L. (2020). Low-frequency observations of the giant radio galaxy NGC 6251. MNRAS, 495(1), 143–159.

61. Caprioli, D. & Haggerty, C. (2019). The Issue with Diffusive Shock Acceleration. In *36th International Cosmic Ray Conference (ICRC2019)*, volume 36 of *International Cosmic Ray Conference* (pp. 209).

62. Cargill, P. J. (2007). Fundamentals of plasma physics. *Plasma Physics and Controlled Fusion*, 49(2), 197.

63. Carretti, E., O'Sullivan, S. P., Vacca, V., Vazza, F., Gheller, C., Vernstrom, T., & Bonafede, A. (2023). Magnetic field evolution in cosmic filaments with LOFAR data. MNRAS, 518(2), 2273–2286.

64. Cavaliere, A. & Fusco-Femiano, R. (1976). X-rays from hot plasma in clusters of galaxies. A&A, 49, 137–144.

65. Cavaliere, A. & Fusco-Femiano, R. (1978). The Distribution of Hot Gas in Clusters of Galaxies. A&A, 70, 677.

66. Cavaliere, A. & Rephaeli, Y. (2011). *Astrophysics of Galaxy Clusters*, volume 172. IOS Press.

67. Cen, R. & Ostriker, J. P. (1999). Where Are the Baryons? ApJ, 514(1), 1–6.

68. Chambers, K. C., Magnier, E. A., Metcalfe, N., Flewelling, H. A., Huber, M. E., Waters, C. Z., Denneau, L., Draper, P. W., Farrow, D., Finkbeiner, D. P., Holmberg, C., Koppenhoefer, J., Price, P. A., Rest, A., Saglia, R. P., Schlafly, E. F., Smartt, S. J., Sweeney, W., Wainscoat, R. J., Burgett, W. S., Chastel, S., Grav, T., Heasley, J. N., Hodapp, K. W., Jedicke, R., Kaiser, N., Kudritzki, R. P., Luppino, G. A., Lupton, R. H., Monet, D. G., Morgan, J. S., Onaka, P. M., Shiao, B., Stubbs, C. W., Tonry, J. L., White, R., Bañados, E., Bell, E. F., Bender, R., Bernard, E. J., Boegner, M., Boffi, F., Botticella, M. T., Calamida, A., Casertano, S., Chen, W. P., Chen, X., Cole, S., Deacon, N., Frenk, C., Fitzsimmons, A., Gezari, S., Gibbs, V., Goessl, C., Goggia, T., Gourgue, R., Goldman, B., Grant, P., Grebel, E. K., Hambly, N. C., Hasinger, G., Heavens, A. F., Heckman, T. M., Henderson, R., Henning, T., Holman, M., Hopp, U., Ip, W. H., Isani, S., Jackson, M., Keyes, C. D., Koekemoer, A. M., Kotak, R., Le, D., Liska, D., Long, K. S., Lucey, J. R., Liu, M., Martin, N. F., Masci, G., McLean, B., Mindel, E.,

Misra, P., Morganson, E., Murphy, D. N. A., Obaika, A., Narayan, G., Nieto-Santisteban, M. A., Norberg, P., Peacock, J. A., Pier, E. A., Postman, M., Primak, N., Rae, C., Rai, A., Riess, A., Riffeser, A., Rix, H. W., Röser, S., Russel, R., Rutz, L., Schilbach, E., Schultz, A. S. B., Scolnic, D., Strolger, L., Szalay, A., Seitz, S., Small, E., Smith, K. W., Soderblom, D. R., Taylor, P., Thomson, R., Taylor, A. N., Thakar, A. R., Thiel, J., Thilker, D., Unger, D., Urata, Y., Valenti, J., Wagner, J., Walder, T., Walter, F., Watters, S. P., Werner, S., Wood-Vasey, W. M., & Wyse, R. (2016). The Pan-STARRS1 Surveys. *arXiv e-prints*, (pp. arXiv:1612.05560).

69. Chang, Y.-Y., van der Wel, A., da Cunha, E., & Rix, H.-W. (2015). Stellar Masses and Star Formation Rates for 1M Galaxies from SDSS+WISE. ApJS, 219(1), 8.

70. Christodoulou, D. (1970). Reversible and Irreversible Transformations in Black-Hole Physics. Phys. Rev. Lett., 25(22), 1596–1597.

71. Cohen, M. H. (1973). Introduction to very-long-baseline interferometry. *IEEE Proceedings*, 61, 1192–1197.

72. Cole, S., Percival, W. J., Peacock, J. A., Norberg, P., Baugh, C. M., Frenk, C. S., Baldry, I., Bland-Hawthorn, J., Bridges, T., Cannon, R., Colless, M., Collins, C., Couch, W., Cross, N. J. G., Dalton, G., Eke, V. R., de Propris, R., Driver, S. P., Efstathiou, G., Ellis, R. S., Glazebrook, K., Jackson, C., Jenkins, A., Lahav, O., Lewis, I., Lumsden, S., Maddox, S., Madgwick, D., Peterson, B. A., Sutherland, W., Taylor, K., & 2dFGRS Team, T. (2005). The 2dF Galaxy Redshift Survey: power-spectrum analysis of the final data set and cosmological implications. *Monthly Notices of the Royal Astronomical Society*, 362(2), 505–534.

73. Condon, J. J., Anderson, E., & Broderick, J. J. (1995). Radio Identifications of Extragalactic IRAS Sources. AJ, 109, 2318.

74. Condon, J. J., Cotton, W. D., Fomalont, E. B., Kellermann, K. I., Miller, N., Perley, R. A., Scott, D., Vernstrom, T., & Wall, J. V. (2012). Resolving the Radio Source Background: Deeper Understanding through Confusion. ApJ, 758(1), 23.

75. Condon, J. J., Cotton, W. D., Greisen, E. W., Yin, Q. F., Perley, R. A., Taylor, G. B., & Broderick, J. J. (1998). The NRAO VLA Sky Survey. AJ, 115(5), 1693–1716.

76. Connor, L., Bouman, K. L., Ravi, V., & Hallinan, G. (2022). Deep radio-interferometric imaging with POLISH: DSA-2000 and weak lensing. MNRAS, 514(2), 2614–2626.

77. Conselice, C. J., Wilkinson, A., Duncan, K., & Mortlock, A. (2016). The Evolution of Galaxy Number Density at $z < 8$ and Its Implications. ApJ, 830(2), 83.

78. Cooper, B. F. C., Price, R. M., & Cole, D. J. (1965). A study of the decimetric emission and polarization of Centaurus A. *Australian Journal of Physics*, 18, 589.

79. Crain, R. A., Schaye, J., Bower, R. G., Furlong, M., Schaller, M., Theuns, T., Dalla Vecchia, C., Frenk, C. S., McCarthy, I. G., Helly, J. C., Jenkins, A., Rosas-Guevara, Y. M., White, S. D. M., & Trayford, J. W. (2015). The EAGLE simulations of galaxy formation: calibration of subgrid physics and model variations. MNRAS, 450(2), 1937–1961.

80. Croston, J. H., Hardcastle, M. J., Mingo, B., Best, P. N., Sabater, J., Shimwell, T. M., Williams, W. L., Duncan, K. J., Röttgering, H. J. A., Brienza, M., Gürkan, G., Ineson, J., Miley, G. K., Morabito, L. M., O'Sullivan, S. P., & Prandoni, I. (2019). The environments of radio-loud AGN from the LOFAR Two-Metre Sky Survey (LoTSS). A&A, 622, A10.

81. Croston, J. H., Ineson, J., & Hardcastle, M. J. (2018). Particle content, radio-galaxy morphology, and jet power: all radio-loud AGN are not equal. MNRAS, 476(2), 1614–1623.

82. Croton, D. J., Springel, V., White, S. D. M., De Lucia, G., Frenk, C. S., Gao, L., Jenkins, A., Kauffmann, G., Navarro, J. F., & Yoshida, N. (2006). The many lives of active galactic nuclei: cooling flows, black holes and the luminosities and colours of galaxies. MNRAS, 365(1), 11–28.

83. Curtis, H. D. (1918). Descriptions of 762 Nebulae and Clusters Photographed with the Crossley Reflector. *Publications of Lick Observatory*, 13, 9–42.

84. Cutri, R. M. & et al. (2012). VizieR Online Data Catalog: WISE All-Sky Data Release (Cutri+ 2012). *VizieR Online Data Catalog*, (pp. II/311).

85. Cutri, R. M., Wright, E. L., Conrow, T., Fowler, J. W., Eisenhardt, P. R. M., Grillmair, C., Kirkpatrick, J. D., Masci, F., McCallon, H. L., Wheelock, S. L., Fajardo-Acosta, S., Yan, L., Benford, D., Harbut, M., Jarrett, T., Lake, S., Leisawitz, D., Ressler, M. E., Stanford, S. A., Tsai, C. W., Liu, F., Helou, G., Mainzer, A., Gettngs, D., Gonzalez, A., Hoffman, D., Marsh, K. A., Padgett, D., Skrutskie, M. F., Beck, R., Papin, M., & Wittman, M. (2021). VizieR Online Data Catalog: AllWISE Data Release (Cutri+ 2013). *VizieR Online Data Catalog*, (pp. II/328).

86. Dabhade, P., Gaikwad, M., Bagchi, J., Pandey-Pommier, M., Sankhyayan, S., & Raychaudhury, S. (2017). Discovery of giant radio galaxies from NVSS: radio and infrared properties. MNRAS, 469(3), 2886–2906.

87. Dabhade, P., Mahato, M., Bagchi, J., Saikia, D. J., Combes, F., Sankhyayan, S., Röttgering, H. J. A., Ho, L. C., Gaikwad, M., Raychaudhury, S., Vaidya, B., & Guiderdoni, B. (2020a). Search and analysis of giant radio galaxies with associated nuclei (SAGAN). I. New sample and multi-wavelength studies. A&A, 642, A153.

88. Dabhade, P., Röttgering, H. J. A., Bagchi, J., Shimwell, T. W., Hardcastle, M. J., Sankhyayan, S., Morganti, R., Jamrozy, M., Shulevski, A., & Duncan, K. J. (2020b). Giant radio galaxies in the LOFAR Two-metre Sky Survey. I. Radio and environmental properties. A&A, 635, A5.

89. Dabhade, P., Saikia, D. J., & Mahato, M. (2023). Decoding the giant extragalactic radio sources. *Journal of Astrophysics and Astronomy*, 44(1), 13.

90. Dálya, G., Galgóczi, G., Dobos, L., Frei, Z., Heng, I. S., Macas, R., Messenger, C., Raffai, P., & de Souza, R. S. (2018). GLADE: A galaxy catalogue for multimessenger searches in the advanced gravitational-wave detector era. MNRAS, 479(2), 2374–2381.

91. de Gasperin, F., Mevius, M., Rafferty, D., Intema, H., & Fallows, R. (2018). The effect of the ionosphere on ultra-low frequency radio-interferometric observations. A&A, 615.

92. de Graaff, A., Cai, Y.-C., Heymans, C., & Peacock, J. A. (2019). Probing the missing baryons with the Sunyaev–Zel'dovich effect from filaments. A&A, 624, A48.

93. de Jong, J. M. G. H. J., van Weeren, R. J., Botteon, A., Oonk, J. B. R., Brunetti, G., Shimwell, T. W., Cassano, R., Röttgering, H. J. A., & Tasse, C. (2022). Deep study of A399-401: Application of a wide-field facet calibration. A&A, 668, A107.

94. de Ruiter, H. R., Willis, A. G., & Arp, H. C. (1977). A Westerbork 1415 MHz survey of background radio sources. II. Optical identifications with deep IIIa-J plates. A&AS, 28, 211–293.

95. Delhaize, J., Heywood, I., Prescott, M., Jarvis, M. J., Delvecchio, I., Whittam, I. H., White, S. V., Hardcastle, M. J., Hale, C. L., Afonso, J., Ao, Y., Brienza, M., Brüggen, M., Collier, J. D., Daddi, E., Glowacki, M., Maddox, N., Morabito, L. K., Prandoni, I., Randriamanakoto, Z., Sekhar, S., An, F., Adams, N. J., Blyth, S., Bowler, R. A. A., Leeuw, L., Marchetti, L., Randriamampandry, S. M., Thorat, K., Seymour, N., Smirnov, O., Taylor, A. R., Tasse, C., & Vaccari, M. (2021). MIGHTEE: are giant radio galaxies more common than we thought? MNRAS, 501(3), 3833–3845.

96. Dewdney, P. E., Hall, P. J., Schilizzi, R. T., & Lazio, T. J. L. W. (2009). The Square Kilometre Array. *IEEE Proceedings*, 97(8), 1482–1496.

97. Dey, A., Schlegel, D. J., Lang, D., Blum, R., Burleigh, K., Fan, X., Findlay, J. R., Finkbeiner, D., Herrera, D., Juneau, S., Landriau, M., Levi, M., McGreer, I., Meisner, A., Myers, A. D., Moustakas, J., Nugent, P., Patej, A., Schlafly, E. F., Walker, A. R., Valdes, F., Weaver, B. A., Yèche, C., Zou, H., Zhou, X., Abareshi, B., Abbott, T. M. C., Abolfathi, B., Aguilera, C., Alam, S., Allen, L., Alvarez, A., Annis, J., Ansarinejad, B., Aubert, M., Beechert, J., Bell, E. F., BenZvi, S. Y., Beutler, F., Bielby, R. M., Bolton, A. S., Briceño, C., Buckley-Geer, E. J., Butler, K., Calamida, A., Carlberg, R. G., Carter, P., Casas, R., Castander, F. J., Choi, Y., Comparat, J., Cukanovaite, E., Delubac, T., DeVries, K., Dey, S., Dhungana, G., Dickinson, M., Ding, Z., Donaldson, J. B., Duan, Y., Duckworth, C. J., Eftekharzadeh, S., Eisenstein, D. J., Etourneau, T., Fagrelius, P. A., Farihi, J., Fitzpatrick, M., Font-Ribera, A., Fulmer, L., Gänsicke, B. T., Gaztanaga, E., George, K., Gerdes, D. W., Gontcho, S. G. A., Gorgoni, C., Green, G., Guy, J., Harmer, D., Hernandez, M., Honscheid, K., Huang, L. W., James, D. J., Jannuzi, B. T., Jiang, L., Joyce, R., Karcher, A., Karkar, S., Kehoe, R., Jean-Paul, K., Kueter-Young, A., Lan, T.-W., Lauer, T. R., Guillou, L. L., Suu, A. L. V., Lee, J. H., Lesser, M., Levasseur, L. P., Li, T. S., Mann, J. L., Marshall, R., Martínez-Vázquez, C. E., Martini, P., du Mas des Bourboux, H., McManus, S., Meier, T. G., Ménard, B., Metcalfe, N., Muñoz-Gutiérrez, A., Najita, J., Napier, K., Narayan, G., Newman, J. A., Nie, J., Nord, B., Norman, D. J., Olsen, K. A. G., Paat, A., Palanque-Delabrouille, N., Peng, X., Poppett, C. L., Poremba, M. R., Prakash, A., Rabinowitz, D., Raichoor, A., Rezaie, M., Robertson, A. N., Roe, N. A., Ross, A. J., Ross, N. P., Rudnick, G., Safonova, S., Saha, A., Sánchez, F. J., Savary, E., Schweiker, H., Scott, A., Seo, H.-J., Shan, H., Silva, D. R., Slepian, Z., Soto, C., Sprayberry, D., Staten, R., Stillman, C. M., Stupak, R. J., Summers, D. L., Tie, S. S., Tirado, H., Vargas-Magaña, M., Vivas, A. K., Wechsler, R. H., Williams, D., Yang, J., Yang, Q., Yapici, T., Zaritsky, D., Zenteno, A., Zhang, K., Zhang, T., Zhou, R., & Zhou, Z. (2019). Overview of the DESI legacy imaging surveys. *AJ*, 157(5), 168.

98. Di Gennaro, G., van Weeren, R. J., Hoeft, M., Kang, H., Ryu, D., Rudnick, L., Forman, W., Röttgering, H. J. A., Brüggen, M., Dawson, W. A., Golovich, N., Hoang, D. N., Intema, H. T., Jones, C., Kraft, R. P., Shimwell, T. W., & Stroe, A. (2018). Deep Very Large Array Observations of the Merging Cluster CIZA J2242.8+5301: Continuum and Spectral Imaging. ApJ, 865(1), 24.

99. Di Matteo, T., Springel, V., & Hernquist, L. (2005). Energy input from quasars regulates the growth and activity of black holes and their host galaxies. Nature, 433(7026), 604–607.

100. Dreher, J. W. & Feigelson, E. D. (1984). Rings and wiggles in Hercules A. Nature, 308, 43–45.

101. Dressel, L. L. & Condon, J. J. (1978). The Arecibo 2380 MHz survey of bright galaxies. ApJS, 36, 53–75.

102. Driver, S. (2021). The challenge of measuring and mapping the missing baryons. *Nature Astronomy*, 5, 852–854.

103. Driver, S. P., Norberg, P., Baldry, I. K., Bamford, S. P., Hopkins, A. M., Liske, J., Loveday, J., Peacock, J. A., Hill, D. T., Kelvin, L. S., Robotham, A. S. G., Cross, N. J. G., Parkinson, H. R., Prescott, M., Conselice, C. J., Dunne, L., Brough, S., Jones, H., Sharp, R. G., van Kampen, E., Oliver, S., Roseboom, I. G., Bland-Hawthorn, J., Croom, S. M., Ellis, S.,

Cameron, E., Cole, S., Frenk, C. S., Couch, W. J., Graham, A. W., Proctor, R., De Propris, R., Doyle, I. F., Edmondson, E. M., Nichol, R. C., Thomas, D., Eales, S. A., Jarvis, M. J., Kuijken, K., Lahav, O., Madore, B. F., Seibert, M., Meyer, M. J., Staveley-Smith, L., Phillipps, S., Popescu, C. C., Sansom, A. E., Sutherland, W. J., Tuffs, R. J., & Warren, S. J. (2009). GAMA: towards a physical understanding of galaxy formation. *Astronomy and Geophysics*, 50(5), 5.12–5.19.

104. Drury, L. O. (1983). Review article: An introduction to the theory of diffusive shock acceleration of energetic particles in tenuous plasmas. *Reports on Progress in Physics*, 46(8), 973–1027.

105. Duane, S., Kennedy, A. D., Pendleton, B. J., & Roweth, D. (1987). Hybrid Monte Carlo. *Physics Letters B*, 195(2), 216–222.

106. Dugan, Z., Gaibler, V., & Silk, J. (2017). Feedback by AGN Jets and Wide-angle Winds on a Galactic Scale. ApJ, 844(1), 37.

107. Duncan, K. J. (2022). All-purpose, all-sky photometric redshifts for the Legacy Imaging Surveys Data Release 8. MNRAS, 512(3), 3662–3683.

108. Eckert, D., Jauzac, M., Shan, H., Kneib, J.-P., Erben, T., Israel, H., Jullo, E., Klein, M., Massey, R., Richard, J., & Tchernin, C. (2015). Warm-hot baryons comprise 5–10 per cent of filaments in the cosmic web. Nature, 528(7580), 105–107.

109. Einstein, A. (1939). On a Stationary System with Spherical Symmetry Consisting of Many Gravitating Masses. *Annals of Mathematics*, 40, 922.

110. Eisenstein, D. J., Zehavi, I., Hogg, D. W., Scoccimarro, R., Blanton, M. R., Nichol, R. C., Scranton, R., Seo, H.-J., Tegmark, M., Zheng, Z., Anderson, S. F., Annis, J., Bahcall, N., Brinkmann, J., Burles, S., Castander, F. J., Connolly, A., Csabai, I., Doi, M., Fukugita, M., Frieman, J. A., Glazebrook, K., Gunn, J. E., Hendry, J. S., Hennessy, G., Ivezić, Z., Kent, S., Knapp, G. R., Lin, H., Loh, Y.-S., Lupton, R. H., Margon, B., McKay, T. A., Meiksin, A., Munn, J. A., Pope, A., Richmond, M. W., Schlegel, D., Schneider, D. P., Shimasaku, K., Stoughton, C., Strauss, M. A., SubbaRao, M., Szalay, A. S., Szapudi, I., Tucker, D. L., Yanny, B., & York, D. G. (2005). Detection of the Baryon Acoustic Peak in the Large-Scale Correlation Function of SDSS Luminous Red Galaxies. *The Astrophysical Journal*, 633(2), 560.

111. Ensslin, T. A., Biermann, P. L., Klein, U., & Kohle, S. (1998). Cluster radio relics as a tracer of shock waves of the large-scale structure formation. A&A, 332, 395–409.

112. Evans, I. N., Primini, F. A., Miller, J. B., Evans, J. D., Allen, C. E., Anderson, C. S., Becker, G., Budynkiewicz, J. A., Burke, D., Chen, J. C., Civano, F., D'Abrusco, R., Doe, S. M., Fabbiano, G., Martinez Galarza, J., Gibbs, D. G., I., Glotfelty, K. J., Graessle, D. E., Grier, J. D., J., Hain, R. M., Hall, D. M., Harbo, P. N., Houck, J. C., Lauer, J. L., Laurino, O., Lee, N. P., McCollough, M. L., McDowell, J. C., McLaughlin, W., Morgan, D. L., Mossman, A. E., Nguyen, D. T., Nichols, J. S., Nowak, M. A., Paxson, C., Perdikeas, M., Plummer, D. A., Rots, A. H., Siemiginowska, A. L., Sundheim, B. A., Thong, S., Tibbetts, M. S., Van Stone, D. W., Winkelman, S. L., & Zografou, P. (2020). The Chandra Source Catalog — A Billion X-ray Photons. In *American Astronomical Society Meeting Abstracts #235*, volume 235 of *American Astronomical Society Meeting Abstracts* (pp. 154.05).

113. Event Horizon Telescope Collaboration, Akiyama, K., Alberdi, A., Alef, W., Algaba, J. C., Anantua, R., Asada, K., Azulay, R., Bach, U., Baczko, A.-K., Ball, D., Baloković, M., Barrett, J., Bauböck, M., Benson, B. A., Bintley, D., Blackburn, L., Blundell, R., Bouman, K. L., Bower, G. C., Boyce, H., Bremer, M., Brinkerink, C. D., Brissenden, R., Britzen, S., Broderick, A. E., Broguiere, D., Bronzwaer, T., Bustamante, S., Byun, D.-Y., Carlstrom, J. E., Ceccobello, C., Chael, A., Chan, C.-k., Chatterjee, K., Chatterjee, S., Chen, M.-T., Chen, Y., Cheng, X., Cho, I., Christian, P., Conroy, N. S., Conway, J. E., Cordes, J. M., Crawford, T. M., Crew, G. B., Cruz-Osorio, A., Cui, Y., Davelaar, J., De Laurentis, M., Deane, R., Dempsey, J., Desvignes, G., Dexter, J., Dhruv, V., Doeleman, S. S., Dougal, S., Dzib, S. A., Eatough, R. P., Emami, R., Falcke, H., Farah, J., Fish, V. L., Fomalont, E., Ford, H. A., Fraga-Encinas, R., Freeman, W. T., Friberg, P., Fromm, C. M., Fuentes, A., Galison, P., Gammie, C. F., García, R., Gentaz, O., Georgiev, B., Goddi, C., Gold, R., Gómez-Ruiz, A. I., Gómez, J. L., Gu, M., Gurwell, M., Hada, K., Haggard, D., Haworth, K., Hecht, M. H., Hesper, R., Heumann, D., Ho, L. C., Ho, P., Honma, M., Huang, C.-W. L., Huang, L., Hughes, D. H., Ikeda, S., Impellizzeri, C. M. V., Inoue, M., Issaoun, S., James, D. J., Jannuzi, B. T., Janssen, M., Jeter, B., Jiang, W., Jiménez-Rosales, A., Johnson, M. D., Jorstad, S., Joshi, A. V., Jung, T., Karami, M., Karuppusamy, R., Kawashima, T., Keating, G. K., Kettenis, M., Kim, D.-J., Kim, J.-Y., Kim, J., Kim, J., Kino, M., Koay, J. Y., Kocherlakota, P., Kofuji, Y., Koch, P. M., Koyama, S., Kramer, C., Kramer, M., Krichbaum, T. P., Kuo, C.-Y., La Bella, N., Lauer, T. R., Lee, D., Lee, S.-S., Leung, P. K., Levis, A., Li, Z., Lico, R., Lindahl, G., Lindqvist, M., Lisakov, M., Liu, J., Liu, K., Liuzzo, E., Lo, W.-P., Lobanov, A. P., Loinard, L., Lonsdale, C. J., Lu, R.-S., Mao, J., Marchili, N., Markoff, S., Marrone, D. P., Marscher, A. P., Martí-Vidal, I., Matsushita, S., Matthews, L. D., Medeiros, L., Menten, K. M., Michalik, D., Mizuno, I., Mizuno, Y., Moran, J. M., Moriyama, K., Moscibrodzka, M., Müller, C., Mus, A., Musoke, G., Myserlis, I., Nadolski, A., Nagai, H., Nagar, N. M., Nakamura, M., Narayan, R., Narayanan, G., Natarajan, I., Nathanail, A., Fuentes, S. N., Neilsen, J., Neri, R., Ni, C., Noutsos, A., Nowak, M. A., Oh, J., Okino, H., Olivares, H., Ortiz-León, G. N., Oyama, T., Özel, F., Palumbo, D. C. M., Paraschos, G. F., Park, J., Parsons, H., Patel, N., Pen, U.-L., Pesce, D. W., Piétu, V., Plambeck, R., PopStefanija, A., Porth, O., Pötzl, F. M., Prather, B., Preciado-López, J. A., Psaltis, D., Pu, H.-Y., Ramakrishnan, V., Rao, R., Rawlings, M. G., Raymond, A. W., Rezzolla, L., Ricarte, A., Ripperda, B., Roelofs,

F., Rogers, A., Ros, E., Romero-Cañizales, C., Roshanineshat, A., Rottmann, H., Roy, A. L., Ruiz, I., Ruszczyk, C., Rygl, K. L. J., Sánchez, S., Sánchez-Argüelles, D., Sánchez-Portal, M., Sasada, M., Satapathy, K., Savolainen, T., Schloerb, F. P., Schonfeld, J., Schuster, K.-F., Shao, L., Shen, Z., Small, D., Sohn, B. W., SooHoo, J., Souccar, K., Sun, H., Tazaki, F., Tetarenko, A. J., Tiede, P., Tilanus, R. P. J., Titus, M., Torne, P., Traianou, E., Trent, T., Trippe, S., Turk, M., van Bemmel, I., van Langevelde, H. J., van Rossum, D. R., Vos, J., Wagner, J., Ward-Thompson, D., Wardle, J., Weintroub, J., Wex, N., Wharton, R., Wielgus, M., Wiik, K., Witzel, G., Wondrak, M. F., Wong, G. N., Wu, Q., Yamaguchi, P., Yoon, D., Young, A., Young, K., Younsi, Z., Yuan, F., Yuan, Y.-F., Zensus, J. A., Zhang, S., Zhao, G.-Y., Zhao, S.-S., Agurto, C., Allardi, A., Amestica, R., Araneda, J. P., Arriagada, O., Berghuis, J. L., Bertarini, A., Berthold, R., Blanchard, J., Brown, K., Cárdenas, M., Cantzler, M., Caro, P., Castillo-Domínguez, E., Chan, T. L., Chang, C.-C., Chang, D. O., Chang, S.-H., Chang, S.-C., Chen, C.-C., Chilson, R., Chuter, T. C., Ciechanowicz, M., Colin-Beltran, E., Coulson, I. M., Crowley, J., Degenaar, N., Dornbusch, S., Durán, C. A., Everett, W. B., Faber, A., Forster, K., Fuchs, M. M., Gale, D. M., Geertsema, G., González, E., Graham, D., Gueth, F., Halverson, N. W., Han, C.-C., Han, K.-C., Hasegawa, Y., Hernández-Rebollar, J. L., Herrera, C., Herrero-Illana, R., Heyminck, S., Hirota, A., Hoge, J., Hostler Schimpf, S. R., Howie, R. E., Huang, Y.-D., Jiang, H., Jinchi, H., John, D., Kimura, K., Klein, T., Kubo, D., Kuroda, J., Kwon, C., Lacasse, R., Laing, R., Leitch, E. M., Li, C.-T., Liu, C.-T., Liu, K.-Y., Lin, L. C. C., Lu, L.-M., Mac-Auliffe, F., Martin-Cocher, P., Matulonis, C., Maute, J. K., Messias, H., Meyer-Zhao, Z., Montaña, A., Montenegro-Montes, F., Montgomerie, W., Moreno Nolasco, M. E., Muders, D., Nishioka, H., Norton, T. J., Nystrom, G., Ogawa, H., Olivares, R., Oshiro, P., Pérez-Beaupuits, J. P., Parra, R., Phillips, N. M., Poirier, M., Pradel, N., Qiu, R., Raffin, P. A., Rahlin, A. S., Ramírez, J., Ressler, S., Reynolds, M., Rodríguez-Montoya, I., Saez-Madain, A. F., Santana, J., Shaw, P., Shirkey, L. E., Silva, K. M., Snow, W., Sousa, D., Sridharan, T. K., Stahm, W., Stark, A. A., Test, J., Torstensson, K., Venegas, P., Walther, C., Wei, T.-S., White, C., Wieching, G., Wijnands, R., Wouterloot, J. G. A., Yu, C.-Y., Yu (于威), W., & Zeballos, M. (2022). First Sagittarius A* Event Horizon Telescope Results. I. The Shadow of the Supermassive Black Hole in the Center of the Milky Way. ApJ, 930(2), L12.

114. Event Horizon Telescope Collaboration, Akiyama, K., Alberdi, A., Alef, W., Asada, K., Azulay, R., Baczko, A.-K., Ball, D., Baloković, M., Barrett, J., Bintley, D., Blackburn, L., Boland, W., Bouman, K. L., Bower, G. C., Bremer, M., Brinkerink, C. D., Brissenden, R., Britzen, S., Broderick, A. E., Broguiere, D., Bronzwaer, T., Byun, D.-Y., Carlstrom, J. E., Chael, A., Chan, C.-k., Chatterjee, S., Chatterjee, K., Chen, M.-T., Chen, Y., Cho, I., Christian, P., Conway, J. E., Cordes, J. M., Crew, G. B., Cui, Y., Davelaar, J., De Laurentis, M., Deane, R., Dempsey, J., Desvignes, G., Dexter, J., Doeleman, S. S., Eatough, R. P., Falcke, H., Fish, V. L., Fomalont, E., Fraga-Encinas, R., Freeman, W. T., Friberg, P., Fromm, C. M., Gómez, J. L., Galison, P., Gammie, C. F., García, R., Gentaz, O., Georgiev, B., Goddi, C., Gold, R., Gu, M., Gurwell, M., Hada, K., Hecht, M. H., Hesper, R., Ho, L. C., Ho, P., Honma, M., Huang, C.-W. L., Huang, L., Hughes, D. H., Ikeda, S., Inoue, M., Issaoun, S., James, D. J., Jannuzi, B. T., Janssen, M., Jeter, B., Jiang, W., Johnson, M. D., Jorstad, S., Jung, T., Karami, M., Karuppusamy, R., Kawashima, T., Keating, G. K., Kettenis, M., Kim, J.-Y., Kim, J., Kim, J., Kino, M., Koay, J. Y., Koch, P. M., Koyama, S., Kramer, M., Kramer, C., Krichbaum, T. P., Kuo, C.-Y., Lauer, T. R., Lee, S.-S., Li, Y.-R., Li, Z., Lindqvist, M., Liu, K., Liuzzo, E., Lo, W.-P., Lobanov, A. P., Loinard, L., Lonsdale, C., Lu, R.-S., MacDonald, N. R., Mao, J., Markoff, S., Marrone, D. P., Marscher, A. P., Martí-Vidal, I., Matsushita, S., Matthews, L. D., Medeiros, L., Menten, K. M., Mizuno, Y., Mizuno, I., Moran, J. M., Moriyama, K., Moscibrodzka, M., Müller, C., Nagai, H., Nagar, N. M., Nakamura, M., Narayan, R., Narayanan, G., Natarajan, I., Neri, R., Ni, C., Noutsos, A., Okino, H., Olivares, H., Ortiz-León, G. N., Oyama, T., Özel, F., Palumbo, D. C. M., Patel, N., Pen, U.-L., Pesce, D. W., Piétu, V., Plambeck, R., PopStefanija, A., Porth, O., Prather, B., Preciado-López, J. A., Psaltis, D., Pu, H.-Y., Ramakrishnan, V., Rao, R., Rawlings, M. G., Raymond, A. W., Rezzolla, L., Ripperda, B., Roelofs, F., Rogers, A., Ros, E., Rose, M., Roshanineshat, A., Rottmann, H., Roy, A. L., Ruszczyk, C., Ryan, B. R., Rygl, K. L. J., Sánchez, S., Sánchez-Arguelles, D., Sasada, M., Savolainen, T., Schloerb, F. P., Schuster, K.-F., Shao, L., Shen, Z., Small, D., Sohn, B. W., SooHoo, J., Tazaki, F., Tiede, P., Tilanus, R. P. J., Titus, M., Toma, K., Torne, P., Trent, T., Trippe, S., Tsuda, S., van Bemmel, I., van Langevelde, H. J., van Rossum, D. R., Wagner, J., Wardle, J., Weintroub, J., Wex, N., Wharton, R., Wielgus, M., Wong, G. N., Wu, Q., Young, K., Young, A., Younsi, Z., Yuan, F., Yuan, Y.-F., Zensus, J. A., Zhao, G., Zhao, S.-S., Zhu, Z., Algaba, J.-C., Allardi, A., Amestica, R., Anczarski, J., Bach, U., Baganoff, F. K., Beaudoin, C., Benson, B. A., Berthold, R., Blanchard, J. M., Blundell, R., Bustamente, S., Cappallo, R., Castillo-Domínguez, E., Chang, C.-C., Chang, S.-H., Chang, S.-C., Chen, C.-C., Chilson, R., Chuter, T. C., Córdova Rosado, R., Coulson, I. M., Crawford, T. M., Crowley, J., David, J., Derome, M., Dexter, M., Dornbusch, S., Dudevoir, K. A., Dzib, S. A., Eckart, A., Eckert, C., Erickson, N. R., Everett, W. B., Faber, A., Farah, J. R., Fath, V., Folkers, T. W., Forbes, D. C., Freund, R., Gómez-Ruiz, A. I., Gale, D. M., Gao, F., Geertsema, G., Graham, D. A., Greer, C. H., Grosslein, R., Gueth, F., Haggard, D., Halverson, N. W., Han, C.-C., Han, K.-C., Hao, J., Hasegawa, Y., Henning, J. W., Hernández-Gómez, A., Herrero-Illana, R., Heyminck, S., Hirota, A., Hoge, J., Huang, Y.-D., Impellizzeri, C. M. V., Jiang, H., Kamble, A., Keisler, R., Kimura, K., Kono, Y., Kubo, D., Kuroda, J., Lacasse, R., Laing, R. A., Leitch, E. M., Li, C.-T., Lin, L. C. C., Liu, C.-T., Liu, K.-Y., Lu, L.-M., Marson, R. G., Martin-Cocher, P. L., Massingill, K. D., Matulonis, C., McColl, M. P., McWhirter, S. R., Messias, H., Meyer-Zhao, Z., Michalik, D., Montaña, A., Montgomerie, W., Mora-Klein, M., Muders, D., Nadolski, A., Navarro, S., Neilsen, J., Nguyen, C. H., Nishioka, H., Norton, T., Nowak, M. A., Nystrom, G., Ogawa, H., Oshiro, P., Oyama, T., Parsons, H., Paine, S. N., Peñalver, J., Phillips, N. M., Poirier, M., Pradel, N., Primiani, R. A.,

Raffin, P. A., Rahlin, A. S., Reiland, G., Risacher, C., Ruiz, I., Sáez-Madaín, A. F., Sassella, R., Schellart, P., Shaw, P., Silva, K. M., Shiokawa, H., Smith, D. R., Snow, W., Souccar, K., Sousa, D., Sridharan, T. K., Srinivasan, R., Stahm, W., Stark, A. A., Story, K., Timmer, S. T., Vertatschitsch, L., Walther, C., Wei, T.-S., Whitehorn, N., Whitney, A. R., Woody, D. P., Wouterloot, J. G. A., Wright, M., Yamaguchi, P., Yu, C.-Y., Zeballos, M., Zhang, S., & Ziurys, L. (2019a). First M87 Event Horizon Telescope Results. I. The Shadow of the Supermassive Black Hole. ApJ, 875(1), L1.

115. Event Horizon Telescope Collaboration, Akiyama, K., Alberdi, A., Alef, W., Asada, K., Azulay, R., Baczko, A.-K., Ball, D., Baloković, M., Barrett, J., Bintley, D., Blackburn, L., Boland, W., Bouman, K. L., Bower, G. C., Bremer, M., Brinkerink, C. D., Brissenden, R., Britzen, S., Broderick, A. E., Broguiere, D., Bronzwaer, T., Byun, D.-Y., Carlstrom, J. E., Chael, A., Chan, C.-k., Chatterjee, S., Chatterjee, K., Chen, M.-T., Chen, Y., Cho, I., Christian, P., Conway, J. E., Cordes, J. M., Crew, G. B., Cui, Y., Davelaar, J., De Laurentis, M., Deane, R., Dempsey, J., Desvignes, G., Dexter, J., Doeleman, S. S., Eatough, R. P., Falcke, H., Fish, V. L., Fomalont, E., Fraga-Encinas, R., Friberg, P., Fromm, C. M., Gómez, J. L., Galison, P., Gammie, C. F., García, R., Gentaz, O., Georgiev, B., Goddi, C., Gold, R., Gu, M., Gurwell, M., Hada, K., Hecht, M. H., Hesper, R., Ho, L. C., Ho, P., Honma, M., Huang, C.-W. L., Huang, L., Hughes, D. H., Ikeda, S., Inoue, M., Issaoun, S., James, D. J., Jannuzi, B. T., Janssen, M., Jeter, B., Jiang, W., Johnson, M. D., Jorstad, S., Jung, T., Karami, M., Karuppusamy, R., Kawashima, T., Keating, G. K., Kettenis, M., Kim, J.-Y., Kim, J., Kim, J., Kino, M., Koay, J. Y., Koch, P. M., Koyama, S., Kramer, M., Kramer, C., Krichbaum, T. P., Kuo, C.-Y., Lauer, T. R., Lee, S.-S., Li, Y.-R., Li, Z., Lindqvist, M., Liu, K., Liuzzo, E., Lo, W.-P., Lobanov, A. P., Loinard, L., Lonsdale, C., Lu, R.-S., MacDonald, N. R., Mao, J., Markoff, S., Marrone, D. P., Marscher, A. P., Martí-Vidal, I., Matsushita, S., Matthews, L. D., Medeiros, L., Menten, K. M., Mizuno, Y., Mizuno, I., Moran, J. M., Moriyama, K., Moscibrodzka, M., Muller, C., Nagai, H., Nagar, N. M., Nakamura, M., Narayan, R., Narayanan, G., Natarajan, I., Neri, R., Ni, C., Noutsos, A., Okino, H., Olivares, H., Oyama, T., Özel, F., Palumbo, D. C. M., Patel, N., Pen, U.-L., Pesce, D. W., Piétu, V., Plambeck, R., PopStefanija, A., Porth, O., Prather, B., Preciado-López, J. A., Psaltis, D., Pu, H.-Y., Ramakrishnan, V., Rao, R., Rawlings, M. G., Raymond, A. W., Rezzolla, L., Ripperda, B., Roelofs, F., Rogers, A., Ros, E., Rose, M., Roshanineshat, A., Rottmann, H., Roy, A. L., Ruszczyk, C., Ryan, B. R., Rygl, K. L. J., Sánchez, S., Sánchez-Arguelles, D., Sasada, M., Savolainen, T., Schloerb, F. P., Schuster, K.-F., Shao, L., Shen, Z., Small, D., Sohn, B. W., SooHoo, J., Tazaki, F., Tiede, P., Tilanus, R. P. J., Titus, M., Toma, K., Torne, P., Trent, T., Trippe, S., Tsuda, S., van Bemmel, I., van Langevelde, H. J., van Rossum, D. R., Wagner, J., Wardle, J., Weintroub, J., Wex, N., Wharton, R., Wielgus, M., Wong, G. N., Wu, Q., Young, A., Young, K., Younsi, Z., Yuan, F., Yuan, Y.-F., Zensus, J. A., Zhao, G., Zhao, S.-S., Zhu, Z., Anczarski, J., Baganoff, F. K., Eckart, A., Farah, J. R., Haggard, D., Meyer-Zhao, Z., Michalik, D., Nadolski, A., Neilsen, J., Nishioka, H., Nowak, M. A., Pradel, N., Primiani, R. A., Souccar, K., Vertatschitsch, L., Yamaguchi, P., & Zhang, S. (2019b). First M87 Event Horizon Telescope Results. V. Physical Origin of the Asymmetric Ring. ApJ, 875(1), L5.

116. Event Horizon Telescope Collaboration, Akiyama, K., Algaba, J. C., Alberdi, A., Alef, W., Anantua, R., Asada, K., Azulay, R., Baczko, A.-K., Ball, D., Baloković, M., Barrett, J., Benson, B. A., Bintley, D., Blackburn, L., Blundell, R., Boland, W., Bouman, K. L., Bower, G. C., Boyce, H., Bremer, M., Brinkerink, C. D., Brissenden, R., Britzen, S., Broderick, A. E., Broguiere, D., Bronzwaer, T., Byun, D.-Y., Carlstrom, J. E., Chael, A., Chan, C.-k., Chatterjee, S., Chatterjee, K., Chen, M.-T., Chen, Y., Chesler, P. M., Cho, I., Christian, P., Conway, J. E., Cordes, J. M., Crawford, T. M., Crew, G. B., Cruz-Osorio, A., Cui, Y., Davelaar, J., De Laurentis, M., Deane, R., Dempsey, J., Desvignes, G., Dexter, J., Doeleman, S. S., Eatough, R. P., Falcke, H., Farah, J., Fish, V. L., Fomalont, E., Ford, H. A., Fraga-Encinas, R., Freeman, W. T., Friberg, P., Fromm, C. M., Fuentes, A., Galison, P., Gammie, C. F., García, R., Gentaz, O., Georgiev, B., Goddi, C., Gold, R., Gómez, J. L., Gómez-Ruiz, A. I., Gu, M., Gurwell, M., Hada, K., Haggard, D., Hecht, M. H., Hesper, R., Ho, L. C., Ho, P., Honma, M., Huang, C.-W. L., Huang, L., Hughes, D. H., Ikeda, S., Inoue, M., Issaoun, S., James, D. J., Jannuzi, B. T., Janssen, M., Jeter, B., Jiang, W., Jimenez-Rosales, A., Johnson, M. D., Jorstad, S., Jung, T., Karami, M., Karuppusamy, R., Kawashima, T., Keating, G. K., Kettenis, M., Kim, D.-J., Kim, J.-Y., Kim, J., Kim, J., Kino, M., Koay, J. Y., Kofuji, Y., Koch, P. M., Koyama, S., Kramer, M., Kramer, C., Krichbaum, T. P., Kuo, C.-Y., Lauer, T. R., Lee, S.-S., Levis, A., Li, Y.-R., Li, Z., Lindqvist, M., Lico, R., Lindahl, G., Liu, J., Liu, K., Liuzzo, E., Lo, W.-P., Lobanov, A. P., Loinard, L., Lonsdale, C., Lu, R.-S., MacDonald, N. R., Mao, J., Marchili, N., Markoff, S., Marrone, D. P., Marscher, A. P., Martí-Vidal, I., Matsushita, S., Matthews, L. D., Medeiros, L., Menten, K. M., Mizuno, I., Mizuno, Y., Moran, J. M., Moriyama, K., Moscibrodzka, M., Müller, C., Musoke, G., Mejías, A. M., Michalik, D., Nadolski, A., Nagai, H., Nagar, N. M., Nakamura, M., Narayan, R., Narayanan, G., Natarajan, I., Nathanail, A., Neilsen, J., Neri, R., Ni, C., Noutsos, A., Nowak, M. A., Okino, H., Olivares, H., Ortiz-León, G. N., Oyama, T., Özel, F., Palumbo, D. C. M., Park, J., Patel, N., Pen, U.-L., Pesce, D. W., Piétu, V., Plambeck, R., PopStefanija, A., Porth, O., Pötzl, F. M., Prather, B., Preciado-López, J. A., Psaltis, D., Pu, H.-Y., Ramakrishnan, V., Rao, R., Rawlings, M. G., Raymond, A. W., Rezzolla, L., Ricarte, A., Ripperda, B., Roelofs, F., Rogers, A., Ros, E., Rose, M., Roshanineshat, A., Rottmann, H., Roy, A. L., Ruszczyk, C., Rygl, K. L. J., Sánchez, S., Sánchez-Arguelles, D., Sasada, M., Savolainen, T., Schloerb, F. P., Schuster, K.-F., Shao, L., Shen, Z., Small, D., Sohn, B. W., SooHoo, J., Sun, H., Tazaki, F., Tetarenko, A. J., Tiede, P., Tilanus, R. P. J., Titus, M., Toma, K., Torne, P., Trent, T., Traianou, E., Trippe, S., van Bemmel, I., van Langevelde, H. J., van Rossum, D. R., Wagner, J., Ward-Thompson, D., Wardle, J., Weintroub, J., Wex, N., Wharton, R., Wielgus, M., Wong, G. N., Wu, Q., Yoon, D., Young, A., Young, K.,

Younsi, Z., Yuan, F., Yuan, Y.-F., Zensus, J. A., Zhao, G.-Y., & Zhao, S.-S. (2021a). First M87 Event Horizon Telescope Results. VII. Polarization of the Ring. ApJ, 910(1), L12.

117. Event Horizon Telescope Collaboration, Akiyama, K., Algaba, J. C., Alberdi, A., Alef, W., Anantua, R., Asada, K., Azulay, R., Baczko, A.-K., Ball, D., Baloković, M., Barrett, J., Benson, B. A., Bintley, D., Blackburn, L., Blundell, R., Boland, W., Bouman, K. L., Bower, G. C., Boyce, H., Bremer, M., Brinkerink, C. D., Brissenden, R., Britzen, S., Broderick, A. E., Broguiere, D., Bronzwaer, T., Byun, D.-Y., Carlstrom, J. E., Chael, A., Chan, C.-k., Chatterjee, S., Chatterjee, K., Chen, M.-T., Chen, Y., Chesler, P. M., Cho, I., Christian, P., Conway, J. E., Cordes, J. M., Crawford, T. M., Crew, G. B., Cruz-Osorio, A., Cui, Y., Davelaar, J., De Laurentis, M., Deane, R., Dempsey, J., Desvignes, G., Dexter, J., Doeleman, S. S., Eatough, R. P., Falcke, H., Farah, J., Fish, V. L., Fomalont, E., Ford, H. A., Fraga-Encinas, R., Friberg, P., Fromm, C. M., Fuentes, A., Galison, P., Gammie, C. F., García, R., Gelles, Z., Gentaz, O., Georgiev, B., Goddi, C., Gold, R., Gómez, J. L., Gómez-Ruiz, A. I., Gu, M., Gurwell, M., Hada, K., Haggard, D., Hecht, M. H., Hesper, R., Himwich, E., Ho, L. C., Ho, P., Honma, M., Huang, C.-W. L., Huang, L., Hughes, D. H., Ikeda, S., Inoue, M., Issaoun, S., James, D. J., Jannuzi, B. T., Janssen, M., Jeter, B., Jiang, W., Jimenez-Rosales, A., Johnson, M. D., Jorstad, S., Jung, T., Karami, M., Karuppusamy, R., Kawashima, T., Keating, G. K., Kettenis, M., Kim, D.-J., Kim, J.-Y., Kim, J., Kim, J., Kino, M., Koay, J. Y., Kofuji, Y., Koch, P. M., Koyama, S., Kramer, M., Kramer, C., Krichbaum, T. P., Kuo, C.-Y., Lauer, T. R., Lee, S.-S., Levis, A., Li, Y.-R., Li, Z., Lindqvist, M., Lico, R., Lindahl, G., Liu, J., Liu, K., Liuzzo, E., Lo, W.-P., Lobanov, A. P., Loinard, L., Lonsdale, C., Lu, R.-S., MacDonald, N. R., Mao, J., Marchili, N., Markoff, S., Marrone, D. P., Marscher, A. P., Martí-Vidal, I., Matsushita, S., Matthews, L. D., Medeiros, L., Menten, K. M., Mizuno, I., Mizuno, Y., Moran, J. M., Moriyama, K., Moscibrodzka, M., Müller, C., Musoke, G., Mus Mejías, A., Michalik, D., Nadolski, A., Nagai, H., Nagar, N. M., Nakamura, M., Narayan, R., Narayanan, G., Natarajan, I., Nathanail, A., Neilsen, J., Neri, R., Ni, C., Noutsos, A., Nowak, M. A., Okino, H., Olivares, H., Ortiz-León, G. N., Oyama, T., Özel, F., Palumbo, D. C. M., Park, J., Patel, N., Pen, U.-L., Pesce, D. W., Piétu, V., Plambeck, R., PopStefanija, A., Porth, O., Pötzl, F. M., Prather, B., Preciado-López, J. A., Psaltis, D., Pu, H.-Y., Ramakrishnan, V., Rao, R., Rawlings, M. G., Raymond, A. W., Rezzolla, L., Ricarte, A., Ripperda, B., Roelofs, F., Rogers, A., Ros, E., Rose, M., Roshanineshat, A., Rottmann, H., Roy, A. L., Ruszczyk, C., Rygl, K. L. J., Sánchez, S., Sánchez-Arguelles, D., Sasada, M., Savolainen, T., Schloerb, F. P., Schuster, K.-F., Shao, L., Shen, Z., Small, D., Sohn, B. W., SooHoo, J., Sun, H., Tazaki, F., Tetarenko, A. J., Tiede, P., Tilanus, R. P. J., Titus, M., Toma, K., Torne, P., Trent, T., Traianou, E., Trippe, S., van Bemmel, I., van Langevelde, H. J., van Rossum, D. R., Wagner, J., Ward-Thompson, D., Wardle, J., Weintroub, J., Wex, N., Wharton, R., Wielgus, M., Wong, G. N., Wu, Q., Yoon, D., Young, A., Young, K., Younsi, Z., Yuan, F., Yuan, Y.-F., Zensus, J. A., Zhao, G.-Y., & Zhao, S.-S. (2021b). First M87 Event Horizon Telescope Results. VIII. Magnetic Field Structure near The Event Horizon. ApJ, 910(1), L13.

118. Fabian, A. C. (2012). Observational Evidence of Active Galactic Nuclei Feedback. ARA&A, 50, 455–489.

119. Fabian, A. C., Nulsen, P. E. J., & Canizares, C. R. (1984). Cooling flows in clusters of galaxies. Nature, 310(5980), 733–740.

120. Falco, E. E., Kurtz, M. J., Geller, M. J., Huchra, J. P., Peters, J., Berlind, P., Mink, D. J., Tokarz, S. P., & Elwell, B. (1999). The Updated Zwicky Catalog (UZC). PASP, 111(758), 438–452.

121. Feretti, L., Boehringer, H., Giovannini, G., & Neumann, D. (1997). The radio and X-ray properties of Abell 2255. A&A, 317, 432–440.

122. Ford, A. L., Keenan, B. D., & Medvedev, M. V. (2018). Electron-positron cascade in magnetospheres of spinning black holes. *Physical review. D*, 98(6), 063016.

123. Forero-Romero, J. E., Hoffman, Y., Gottlöber, S., Klypin, A., & Yepes, G. (2009). A dynamical classification of the cosmic web. MNRAS, 396(3), 1815–1824.

124. Frank, P., Jasche, J., & Enßlin, T. A. (2016). SOMBI: Bayesian identification of parameter relations in unstructured cosmological data. A&A, 595, A75.

125. Friedman, J. H. (2001). Greedy function approximation: a gradient boosting machine. *Annals of statistics*, (pp. 1189–1232).

126. Gaia Collaboration, Brown, A. G. A., Vallenari, A., Prusti, T., de Bruijne, J. H. J., Babusiaux, C., Biermann, M., Creevey, O. L., Evans, D. W., Eyer, L., Hutton, A., Jansen, F., Jordi, C., Klioner, S. A., Lammers, U., Lindegren, L., Luri, X., Mignard, F., Panem, C., Pourbaix, D., Randich, S., Sartoretti, P., Soubiran, C., Walton, N. A., Arenou, F., Bailer-Jones, C. A. L., Bastian, U., Cropper, M., Drimmel, R., Katz, D., Lattanzi, M. G., van Leeuwen, F., Bakker, J., Cacciari, C., Castañeda, J., De Angeli, F., Ducourant, C., Fabricius, C., Fouesneau, M., Frémat, Y., Guerra, R., Guerrier, A., Guiraud, J., Jean-Antoine Piccolo, A., Masana, E., Messineo, R., Mowlavi, N., Nicolas, C., Nienartowicz, K., Pailler, F., Panuzzo, P., Riclet, F., Roux, W., Seabroke, G. M., Sordo, R., Tanga, P., Thévenin, F., Gracia-Abril, G., Portell, J., Teyssier, D., Altmann, M., Andrae, R., Bellas-Velidis, I., Benson, K., Berthier, J., Blomme, R., Brugaletta, E., Burgess, P. W., Busso, G., Carry, B., Cellino, A., Cheek, N., Clementini, G., Damerdji, Y., Davidson, M., Delchambre, L., Dell'Oro, A., Fernández-Hernández, J., Galluccio, L., García-Lario, P., Garcia-Reinaldos, M., González-Núñez, J., Gosset, E., Haigron, R., Halbwachs, J. L., Hambly, N. C., Harrison, D. L., Hatzidimitriou, D., Heiter, U., Hernández, J., Hestroffer, D., Hodgkin, S. T., Holl, B.,

Janßen, K., Jevardat de Fombelle, G., Jordan, S., Krone-Martins, A., Lanzafame, A. C., Löffler, W., Lorca, A., Manteiga, M., Marchal, O., Marrese, P. M., Moitinho, A., Mora, A., Muinonen, K., Osborne, P., Pancino, E., Pauwels, T., Petit, J. M., Recio-Blanco, A., Richards, P. J., Riello, M., Rimoldini, L., Robin, A. C., Roegiers, T., Rybizki, J., Sarro, L. M., Siopis, C., Smith, M., Sozzetti, A., Ulla, A., Utrilla, E., van Leeuwen, M., van Reeven, W., Abbas, U., Abreu Aramburu, A., Accart, S., Aerts, C., Aguado, J. J., Ajaj, M., Altavilla, G., Álvarez, M. A., Álvarez Cid-Fuentes, J., Alves, J., Anderson, R. I., Anglada Varela, E., Antoja, T., Audard, M., Baines, D., Baker, S. G., Balaguer-Núñez, L., Balbinot, E., Balog, Z., Barache, C., Barbato, D., Barros, M., Barstow, M. A., Bartolomé, S., Bassilana, J. L., Bauchet, N., Baudesson-Stella, A., Becciani, U., Bellazzini, M., Bernet, M., Bertone, S., Bianchi, L., Blanco-Cuaresma, S., Boch, T., Bombrun, A., Bossini, D., Bouquillon, S., Bragaglia, A., Bramante, L., Breedt, E., Bressan, A., Brouillet, N., Bucciarelli, B., Burlacu, A., Busonero, D., Butkevich, A. G., Buzzi, R., Caffau, E., Cancelliere, R., Cánovas, H., Cantat-Gaudin, T., Carballo, R., Carlucci, T., Carnerero, M. I., Carrasco, J. M., Casamiquela, L., Castellani, M., Castro-Ginard, A., Castro Sampol, P., Chaoul, L., Charlot, P., Chemin, L., Chiavassa, A., Cioni, M. R. L., Comoretto, G., Cooper, W. J., Cornez, T., Cowell, S., Crifo, F., Crosta, M., Crowley, C., Dafonte, C., Dapergolas, A., David, M., David, P., de Laverny, P., De Luise, F., De March, R., De Ridder, J., de Souza, R., de Teodoro, P., de Torres, A., del Peloso, E. F., del Pozo, E., Delbo, M., Delgado, A., Delgado, H. E., Delisle, J. B., Di Matteo, P., Diakite, S., Diener, C., Distefano, E., Dolding, C., Eappachen, D., Edvardsson, B., Enke, H., Esquej, P., Fabre, C., Fabrizio, M., Faigler, S., Fedorets, G., Fernique, P., Fienga, A., Figueras, F., Fouron, C., Fragkoudi, F., Fraile, E., Franke, F., Gai, M., Garabato, D., Garcia-Gutierrez, A., García-Torres, M., Garofalo, A., Gavras, P., Gerlach, E., Geyer, R., Giacobbe, P., Gilmore, G., Girona, S., Giuffrida, G., Gomel, R., Gomez, A., Gonzalez-Santamaria, I., González-Vidal, J. J., Granvik, M., Gutiérrez-Sánchez, R., Guy, L. P., Hauser, M., Haywood, M., Helmi, A., Hidalgo, S. L., Hilger, T., Hładczuk, N., Hobbs, D., Holland, G., Huckle, H. E., Jasniewicz, G., Jonker, P. G., Juaristi Campillo, J., Julbe, F., Karbevska, L., Kervella, P., Khanna, S., Kochoska, A., Kontizas, M., Kordopatis, G., Korn, A. J., Kostrzewa-Rutkowska, Z., Kruszyńska, K., Lambert, S., Lanza, A. F., Lasne, Y., Le Campion, J. F., Le Fustec, Y., Lebreton, Y., Lebzelter, T., Leccia, S., Leclerc, N., Lecoeur-Taibi, I., Liao, S., Licata, E., Lindstrøm, E. P., Lister, T. A., Livanou, E., Lobel, A., Madrero Pardo, P., Managau, S., Mann, R. G., Marchant, J. M., Marconi, M., Marcos Santos, M. M. S., Marinoni, S., Marocco, F., Marshall, D. J., Martin Polo, L., Martín-Fleitas, J. M., Masip, A., Massari, D., Mastrobuono-Battisti, A., Mazeh, T., McMillan, P. J., Messina, S., Michalik, D., Millar, N. R., Mints, A., Molina, D., Molinaro, R., Molnár, L., Montegriffo, P., Mor, R., Morbidelli, R., Morel, T., Morris, D., Mulone, A. F., Munoz, D., Muraveva, T., Murphy, C. P., Musella, I., Noval, L., Ordénovic, C., Orrù, G., Osinde, J., Pagani, C., Pagano, I., Palaversa, L., Palicio, P. A., Panahi, A., Pawlak, M., Peñalosa Esteller, X., Penttilä, A., Piersimoni, A. M., Pineau, F. X., Plachy, E., Plum, G., Poggio, E., Poretti, E., Poujoulet, E., Prša, A., Pulone, L., Racero, E., Ragaini, S., Rainer, M., Raiteri, C. M., Rambaux, N., Ramos, P., Ramos-Lerate, M., Re Fiorentin, P., Regibo, S., Reylé, C., Ripepi, V., Riva, A., Rixon, G., Robichon, N., Robin, C., Roelens, M., Rohrbasser, L., Romero-Gómez, M., Rowell, N., Royer, F., Rybicki, K. A., Sadowski, G., Sagristà Sellés, A., Sahlmann, J., Salgado, J., Salguero, E., Samaras, N., Sanchez Gimenez, V., Sanna, N., Santoveña, R., Sarasso, M., Schultheis, M., Sciacca, E., Segol, M., Segovia, J. C., Ségransan, D., Semeux, D., Shahaf, S., Siddiqui, H. I., Siebert, A., Siltala, L., Slezak, E., Smart, R. L., Solano, E., Solitro, F., Souami, D., Souchay, J., Spagna, A., Spoto, F., Steele, I. A., Steidelmüller, H., Stephenson, C. A., Süveges, M., Szabados, L., Szegedi-Elek, E., Taris, F., Tauran, G., Taylor, M. B., Teixeira, R., Thuillot, W., Tonello, N., Torra, F., Torra, J., Turon, C., Unger, N., Vaillant, M., van Dillen, E., Vanel, O., Vecchiato, A., Viala, Y., Vicente, D., Voutsinas, S., Weiler, M., Wevers, T., Wyrzykowski, Ł., Yoldas, A., Yvard, P., Zhao, H., Zorec, J., Zucker, S., Zurbach, C., & Zwitter, T. (2021). Gaia Early Data Release 3. Summary of the contents and survey properties. A&A, 649, A1.

127. Gaia Collaboration, Prusti, T., de Bruijne, J. H. J., Brown, A. G. A., Vallenari, A., Babusiaux, C., Bailer-Jones, C. A. L., Bastian, U., Biermann, M., Evans, D. W., Eyer, L., Jansen, F., Jordi, C., Klioner, S. A., Lammers, U., Lindegren, L., Luri, X., Mignard, F., Milligan, D. J., Panem, C., Poinsignon, V., Pourbaix, D., Randich, S., Sarri, G., Sartoretti, P., Siddiqui, H. I., Soubiran, C., Valette, V., van Leeuwen, F., Walton, N. A., Aerts, C., Arenou, F., Cropper, M., Drimmel, R., Høg, E., Katz, D., Lattanzi, M. G., O'Mullane, W., Grebel, E. K., Holland, A. D., Huc, C., Passot, X., Bramante, L., Cacciari, C., Castañeda, J., Chaoul, L., Cheek, N., De Angeli, F., Fabricius, C., Guerra, R., Hernández, J., Jean-Antoine-Piccolo, A., Masana, E., Messineo, R., Mowlavi, N., Nienartowicz, K., Ordóñez-Blanco, D., Panuzzo, P., Portell, J., Richards, P. J., Riello, M., Seabroke, G. M., Tanga, P., Thévenin, F., Torra, J., Els, S. G., Gracia-Abril, G., Comoretto, G., Garcia-Reinaldos, M., Lock, T., Mercier, E., Altmann, M., Andrae, R., Astraatmadja, T. L., Bellas-Velidis, I., Benson, K., Berthier, J., Blomme, R., Busso, G., Carry, B., Cellino, A., Clementini, G., Cowell, S., Creevey, O., Cuypers, J., Davidson, M., De Ridder, J., de Torres, A., Delchambre, L., Dell'Oro, A., Ducourant, C., Frémat, Y., García-Torres, M., Gosset, E., Halbwachs, J. L., Hambly, N. C., Harrison, D. L., Hauser, M., Hestroffer, D., Hodgkin, S. T., Huckle, H. E., Hutton, A., Jasniewicz, G., Jordan, S., Kontizas, M., Korn, A. J., Lanzafame, A. C., Manteiga, M., Moitinho, A., Muinonen, K., Osinde, J., Pancino, E., Pauwels, T., Petit, J. M., Recio-Blanco, A., Robin, A. C., Sarro, L. M., Siopis, C., Smith, M., Smith, K. W., Sozzetti, A., Thuillot, W., van Reeven, W., Viala, Y., Abbas, U., Abreu Aramburu, A., Accart, S., Aguado, J. J., Allan, P. M., Allasia, W., Altavilla, G., Álvarez, M. A., Alves, J., Anderson, R. I., Andrei, A. H., Anglada Varela, E., Antiche, E., Antoja, T., Antón, S., Arcay, B., Atzei, A., Ayache, L., Bach, N., Baker, S. G., Balaguer-Núñez, L., Barache, C., Barata, C., Barbier, A., Barblan, F., Baroni, M., Barrado y Navascués, D., Barros, M., Barstow, M. A., Becciani, U., Bellazzini, M., Bellei, G., Bello García, A.,

Belokurov, V., Bendjoya, P., Berihuete, A., Bianchi, L., Bienaymé, O., Billebaud, F., Blagorodnova, N., Blanco-Cuaresma, S., Boch, T., Bombrun, A., Borrachero, R., Bouquillon, S., Bourda, G., Bouy, H., Bragaglia, A., Breddels, M. A., Brouillet, N., Brüsemeister, T., Bucciarelli, B., Budnik, F., Burgess, P., Burgon, R., Burlacu, A., Busonero, D., Buzzi, R., Caffau, E., Cambras, J., Campbell, H., Cancelliere, R., Cantat-Gaudin, T., Carlucci, T., Carrasco, J. M., Castellani, M., Charlot, P., Charnas, J., Charvet, P., Chassat, F., Chiavassa, A., Clotet, M., Cocozza, G., Collins, R. S., Collins, P., Costigan, G., Crifo, F., Cross, N. J. G., Crosta, M., Crowley, C., Dafonte, C., Damerdji, Y., Dapergolas, A., David, P., David, M., De Cat, P., de Felice, F., de Laverny, P., De Luise, F., De March, R., de Martino, D., de Souza, R., Debosscher, J., del Pozo, E., Delbo, M., Delgado, A., Delgado, H. E., di Marco, F., Di Matteo, P., Diakite, S., Distefano, E., Dolding, C., Dos Anjos, S., Drazinos, P., Durán, J., Dzigan, Y., Ecale, E., Edvardsson, B., Enke, H., Erdmann, M., Escolar, D., Espina, M., Evans, N. W., Eynard Bontemps, G., Fabre, C., Fabrizio, M., Faigler, S., Falcão, A. J., Farràs Casas, M., Faye, F., Federici, L., Fedorets, G., Fernández-Hernández, J., Fernique, P., Fienga, A., Figueras, F., Filippi, F., Findeisen, K., Fonti, A., Fouesneau, M., Fraile, E., Fraser, M., Fuchs, J., Furnell, R., Gai, M., Galleti, S., Galluccio, L., Garabato, D., García-Sedano, F., Garé, P., Garofalo, A., Garralda, N., Gavras, P., Gerssen, J., Geyer, R., Gilmore, G., Girona, S., Giuffrida, G., Gomes, M., González-Marcos, A., González-Núñez, J., González-Vidal, J. J., Granvik, M., Guerrier, A., Guillout, P., Guiraud, J., Gúrpide, A., Gutiérrez-Sánchez, R., Guy, L. P., Haigron, R., Hatzidimitriou, D., Haywood, M., Heiter, U., Helmi, A., Hobbs, D., Hofmann, W., Holl, B., Holland, G., Hunt, J. A. S., Hypki, A., Icardi, V., Irwin, M., Jevardat de Fombelle, G., Jofré, P., Jonker, P. G., Jorissen, A., Julbe, F., Karampelas, A., Kochoska, A., Kohley, R., Kolenberg, K., Kontizas, E., Koposov, S. E., Kordopatis, G., Koubsky, P., Kowalczyk, A., Krone-Martins, A., Kudryashova, M., Kull, I., Bachchan, R. K., Lacoste-Seris, F., Lanza, A. F., Lavigne, J. B., Le Poncin-Lafitte, C., Lebreton, Y., Lebzelter, T., Leccia, S., Leclerc, N., Lecoeur-Taibi, I., Lemaitre, V., Lenhardt, H., Leroux, F., Liao, S., Licata, E., Lindstrøm, H. E. P., Lister, T. A., Livanou, E., Lobel, A., Löffler, W., López, M., Lopez-Lozano, A., Lorenz, D., Loureiro, T., MacDonald, I., Magalhães Fernandes, T., Managau, S., Mann, R. G., Mantelet, G., Marchal, O., Marchant, J. M., Marconi, M., Marie, J., Marinoni, S., Marrese, P. M., Marschalkó, G., Marshall, D. J., Martín-Fleitas, J. M., Martino, M., Mary, N., Matijevič, G., Mazeh, T., McMillan, P. J., Messina, S., Mestre, A., Michalik, D., Millar, N. R., Miranda, B. M. H., Molina, D., Molinaro, R., Molinaro, M., Molnár, L., Moniez, M., Montegriffo, P., Monteiro, D., Mor, R., Mora, A., Morbidelli, R., Morel, T., Morgenthaler, S., Morley, T., Morris, D., Mulone, A. F., Muraveva, T., Musella, I., Narbonne, J., Nelemans, G., Nicastro, L., Noval, L., Ordénovic, C., Ordieres-Meré, J., Osborne, P., Pagani, C., Pagano, I., Pailler, F., Palacin, H., Palaversa, L., Parsons, P., Paulsen, T., Pecoraro, M., Pedrosa, R., Pentikäinen, H., Pereira, J., Pichon, B., Piersimoni, A. M., Pineau, F. X., Plachy, E., Plum, G., Poujoulet, E., Prša, A., Pulone, L., Ragaini, S., Rago, S., Rambaux, N., Ramos-Lerate, M., Ranalli, P., Rauw, G., Read, A., Regibo, S., Renk, F., Reylé, C., Ribeiro, R. A., Rimoldini, L., Ripepi, V., Riva, A., Rixon, G., Roelens, M., Romero-Gómez, M., Rowell, N., Royer, F., Rudolph, A., Ruiz-Dern, L., Sadowski, G., Sagristà Sellés, T., Sahlmann, J., Salgado, J., Salguero, E., Sarasso, M., Savietto, H., Schnorhk, A., Schultheis, M., Sciacca, E., Segol, M., Segovia, J. C., Segransan, D., Serpell, E., Shih, I. C., Smareglia, R., Smart, R. L., Smith, C., Solano, E., Solitro, F., Sordo, R., Soria Nieto, S., Souchay, J., Spagna, A., Spoto, F., Stampa, U., Steele, I. A., Steidelmüller, H., Stephenson, C. A., Stoev, H., Suess, F. F., Süveges, M., Surdej, J., Szabados, L., Szegedi-Elek, E., Tapiador, D., Taris, F., Tauran, G., Taylor, M. B., Teixeira, R., Terrett, D., Tingley, B., Trager, S. C., Turon, C., Ulla, A., Utrilla, E., Valentini, G., van Elteren, A., Van Hemelryck, E., van Leeuwen, M., Varadi, M., Vecchiato, A., Veljanoski, J., Via, T., Vicente, D., Vogt, S., Voss, H., Votruba, V., Voutsinas, S., Walmsley, G., Weiler, M., Weingrill, K., Werner, D., Wevers, T., Whitehead, G., Wyrzykowski, Ł., Yoldas, A., Žerjal, M., Zucker, S., Zurbach, C., Zwitter, T., Alecu, A., Allen, M., Allende Prieto, C., Amorim, A., Anglada-Escudé, G., Arsenijevic, V., Azaz, S., Balm, P., Beck, M., Bernstein, H. H., Bigot, L., Bijaoui, A., Blasco, C., Bonfigli, M., Bono, G., Boudreault, S., Bressan, A., Brown, S., Brunet, P. M., Bunclark, P., Buonanno, R., Butkevich, A. G., Carret, C., Carrion, C., Chemin, L., Chéreau, F., Corcione, L., Darmigny, E., de Boer, K. S., de Teodoro, P., de Zeeuw, P. T., Delle Luche, C., Domingues, C. D., Dubath, P., Fodor, F., Frézouls, B., Fries, A., Fustes, D., Fyfe, D., Gallardo, E., Gallegos, J., Gardiol, D., Gebran, M., Gomboc, A., Gómez, A., Grux, E., Gueguen, A., Heyrovsky, A., Hoar, J., Iannicola, G., Isasi Parache, Y., Janotto, A. M., Joliet, E., Jonckheere, A., Keil, R., Kim, D. W., Klagyivik, P., Klar, J., Knude, J., Kochukhov, O., Kolka, I., Kos, J., Kutka, A., Lainey, V., LeBouquin, D., Liu, C., Loreggia, D., Makarov, V. V., Marseille, M. G., Martayan, C., Martinez-Rubi, O., Massart, B., Meynadier, F., Mignot, S., Munari, U., Nguyen, A. T., Nordlander, T., Ocvirk, P., O'Flaherty, K. S., Olias Sanz, A., Ortiz, P., Osorio, J., Oszkiewicz, D., Ouzounis, A., Palmer, M., Park, P., Pasquato, E., Peltzer, C., Peralta, J., Péturaud, F., Pieniluoma, T., Pigozzi, E., Poels, J., Prat, G., Prod'homme, T., Raison, F., Rebordao, J. M., Risquez, D., Rocca-Volmerange, B., Rosen, S., Ruiz-Fuertes, M. I., Russo, F., Sembay, S., Serraller Vizcaino, I., Short, A., Siebert, A., Silva, H., Sinachopoulos, D., Slezak, E., Soffel, M., Sosnowska, D., Straižys, V., ter Linden, M., Terrell, D., Theil, S., Tiede, C., Troisi, L., Tsalmantza, P., Tur, D., Vaccari, M., Vachier, F., Valles, P., Van Hamme, W., Veltz, L., Virtanen, J., Wallut, J. M., Wichmann, R., Wilkinson, M. I., Ziaeepour, H., & Zschocke, S. (2016). The Gaia mission. A&A, 595, A1.

128. Galvin, T. J., Huynh, M. T., Norris, R. P., Wang, X. R., Hopkins, E., Polsterer, K., Ralph, N. O., O'Brien, A. N., & Heald, G. H. (2020). Cataloguing the radio-sky with unsupervised machine learning: a new approach for the SKA era. MNRAS, 497(3), 2730–2758.

129. Garaldi, E., Pakmor, R., & Springel, V. (2021). Magnetogenesis around the first galaxies: the impact of different field seeding

processes on galaxy formation. MNRAS, 502(4), 5726–5744.

130. Gershtein, S. S. & Zel'dovich, Y. B. (1966). Rest Mass of Muonic Neutrino and Cosmology. *Soviet Journal of Experimental and Theoretical Physics Letters*, 4, 120–122.

131. Gheller, C. & Vazza, F. (2019). A survey of the thermal and non-thermal properties of cosmic filaments. MNRAS, 486(1), 981–1002.

132. Gheller, C. & Vazza, F. (2020). Multiwavelength cross-correlation analysis of the simulated cosmic web. MNRAS, 494(4), 5603–5618.

133. Gheller, C., Vazza, F., & Bonafede, A. (2018). Deep learning based detection of cosmological diffuse radio sources. MNRAS, 480(3), 3749–3761.

134. Gheller, C., Vazza, F., Brüggen, M., Alpaslan, M., Holwerda, B. W., Hopkins, A. M., & Liske, J. (2016). Evolution of cosmic filaments and of their galaxy population from MHD cosmological simulations. MNRAS, 462(1), 448–463.

135. Gheller, C., Vazza, F., Favre, J., & Brüggen, M. (2015). Properties of cosmological filaments extracted from Eulerian simulations. MNRAS, 453(2), 1164–1185.

136. Ghosh, A., Prasad, J., Bharadwaj, S., Ali, S. S., & Chengalur, J. N. (2012). Characterizing foreground for redshifted 21 cm radiation: 150 MHz Giant Metrewave Radio Telescope observations. MNRAS, 426(4), 3295–3314.

137. Gillmor, C. S. (1982). Wilhelm Altar, Edward Appleton, and the Magneto-Ionic Theory. *Proceedings of the American Philosophical Society*, 126(5), 395–440.

138. Girshick, R. (2015). Fast r-cnn. In *Proceedings of the IEEE international conference on computer vision* (pp. 1440–1448).

139. Gordon, Y. A., Boyce, M. M., O'Dea, C. P., Rudnick, L., Andernach, H., Vantyghem, A. N., Baum, S. A., Bui, J.-P., Dionyssiou, M., Safi-Harb, S., & Sander, I. (2021). A Quick Look at the 3 GHz Radio Sky. I. Source Statistics from the Very Large Array Sky Survey. ApJS, 255(2), 30.

140. Govoni, F., Orrù, E., Bonafede, A., Iacobelli, M., Paladino, R., Vazza, F., Murgia, M., Vacca, V., Giovannini, G., Feretti, L., Loi, F., Bernardi, G., Ferrari, C., Pizzo, R. F., Gheller, C., Manti, S., Brüggen, M., Brunetti, G., Cassano, R., de Gasperin, F., Enßlin, T. A., Hoeft, M., Horellou, C., Junklewitz, H., Röttgering, H. J. A., Scaife, A. M. M., Shimwell, T. W., van Weeren, R. J., & Wise, M. (2019). A radio ridge connecting two galaxy clusters in a filament of the cosmic web. *Science*, 364(6444), 981–984.

141. Gregori, G., Ravasio, A., Murphy, C. D., Schaar, K., Baird, A., Bell, A. R., Benuzzi-Mounaix, A., Bingham, R., Constantin, C., Drake, R. P., Edwards, M., Everson, E. T., Gregory, C. D., Kuramitsu, Y., Lau, W., Mithen, J., Niemann, C., Park, H. S., Remington, B. A., Reville, B., Robinson, A. P. L., Ryutov, D. D., Sakawa, Y., Yang, S., Woolsey, N. C., Koenig, M., & Miniati, F. (2012). Generation of scaled protogalactic seed magnetic fields in laser-produced shock waves. Nature, 481(7382), 480–483.

142. Guidetti, D., Laing, R. A., Bridle, A. H., Parma, P., & Gregorini, L. (2011). Ordered magnetic fields around radio galaxies: evidence for interaction with the environment. MNRAS, 413(4), 2525–2544.

143. Gürkan, G., Hardcastle, M. J., & Jarvis, M. J. (2014). The Wide-field Infrared Survey Explorer properties of complete samples of radio-loud active galactic nucleus. MNRAS, 438(2), 1149–1161.

144. Gürkan, G., Prandoni, I., O'Brien, A., Raja, W., Marchetti, L., Vaccari, M., Driver, S., Taylor, E., Franzen, T., Brown, M. J. I., Shabala, S., Andernach, H., Hopkins, A. M., Norris, R. P., Leahy, D., Bilicki, M., Farajollahi, H., Galvin, T., Heald, G., Koribalski, B. S., An, T., & Warhurst, K. (2022). Deep ASKAP EMU Survey of the GAMA23 field: properties of radio sources. MNRAS, 512(4), 6104–6121.

145. Hahn, O., Porciani, C., Carollo, C. M., & Dekel, A. (2007). Properties of dark matter haloes in clusters, filaments, sheets and voids. MNRAS, 375(2), 489–499.

146. Hales, S. E. G., Baldwin, J. E., & Warner, P. J. (1988). The 6C survey of radio sources - II. The zone $30 < \delta < 51$, 08h30m < α <17h30m. MNRAS, 234, 919–936.

147. Hales, S. E. G., Masson, C. R., Warner, P. J., & Baldwin, J. E. (1990). The 6C survey of radio sources - III. The zone 48<Dec<68, 05h25<RA<18h17. MNRAS, 246, 256–262.

148. Hallinan, G., Ravi, V., Weinreb, S., Kocz, J., Huang, Y., Woody, D. P., Lamb, J., D'Addario, L., Catha, M., Law, C., Kulkarni, S. R., Phinney, E. S., Eastwood, M. W., Bouman, K., McLaughlin, M., Ransom, S., Siemens, X., Cordes, J., Lynch, R., Kaplan, D., Brazier, A., Bhatnagar, S., Myers, S., Walter, F., & Gaensler, B. (2019). The DSA-2000 — A Radio Survey Camera. In *Bulletin of the American Astronomical Society*, volume 51 (pp. 255).

149. Hamaker, J. P., Bregman, J. D., & Sault, R. J. (1996). Understanding radio polarimetry. I. Mathematical foundations. A&AS, 117, 137–147.

150. Hardcastle, M. J. (2018). A simulation-based analytic model of radio galaxies. MNRAS, 475(2), 2768–2786.

151. Hardcastle, M. J., Alexander, P., Pooley, G. G., & Riley, J. M. (1998a). FRII radio galaxies with $z < 0.3$ - I. Properties of jets, cores and hotspots. MNRAS, 296(2), 445–462.

152. Hardcastle, M. J. & Croston, J. H. (2020). Radio galaxies and feedback from AGN jets. New A Rev., 88, 101539.

153. Hardcastle, M. J., Horton, M. A., Williams, W. L., Duncan, K. J., Alegre, L., Barkus, B., Croston, J. H., Dickinson, H., Osinga, E., Röttgering, H. J. A., Sabater, J., Shimwell, T. W., Smith, D. J. B., Best, P. N., Botteon, A., Brüggen, M., Drabent, A., de Gasperin, F., Gürkan, G., Hajduk, M., Hale, C. L., Hoeft, M., Jamrozy, M., Kunert-Bajraszewska, M., Kondapally, R., Magliocchetti, M., Mahatma, V. H., Mostert, R. I. J., O'Sullivan, S. P., Pajdosz-Śmierciak, U., Petley, J., Pierce, J. C. S., Prandoni, I., Schwarz, D. J., Shulewski, A., Siewert, T. M., Stott, J. P., Tang, H., Vaccari, M., Zheng, X., Bailey, T., Desbled, S., Goyal, A., Gonano, V., Hanset, M., Kurtz, W., Lim, S. M., Mielle, L., Molloy, C. S., Roth, R., Terentev, I. A., & Torres, M. (2023). The LOFAR Two-Metre Sky Survey. VI. Optical identifications for the second data release. A&A, 678, A151.

154. Hardcastle, M. J. & Krause, M. G. H. (2013). Numerical modelling of the lobes of radio galaxies in cluster environments. MNRAS, 430(1), 174–196.

155. Hardcastle, M. J., Shimwell, T. W., Tasse, C., Best, P. N., Drabent, A., Jarvis, M. J., Prandoni, I., Röttgering, H. J. A., Sabater, J., & Schwarz, D. J. (2021). The contribution of discrete sources to the sky temperature at 144 MHz. A&A, 648, A10.

156. Hardcastle, M. J., Williams, W. L., Best, P. N., Croston, J. H., Duncan, K. J., Röttgering, H. J. A., Sabater, J., Shimwell, T. W., Tasse, C., Callingham, J. R., Cochrane, R. K., de Gasperin, F., Gürkan, G., Jarvis, M. J., Mahatma, V., Miley, G. K., Mingo, B., Mooney, S., Morabito, L. K., O'Sullivan, S. P., Prandoni, I., Shulevski, A., & Smith, D. J. B. (2019). Radio-loud AGN in the first LoTSS data release. The lifetimes and environmental impact of jet-driven sources. A&A, 622, A12.

157. Hardcastle, M. J., Worrall, D. M., & Birkinshaw, M. (1998b). Dynamics of the radio galaxy 3C449. MNRAS, 296(4), 1098–1104.

158. Harrison, I., Camera, S., Zuntz, J., & Brown, M. L. (2016). SKA weak lensing - I. Cosmological forecasts and the power of radio-optical cross-correlations. MNRAS, 463, 3674–3685.

159. Hart, R. E., Bamford, S. P., Willett, K. W., Masters, K. L., Cardamone, C., Lintott, C. J., Mackay, R. J., Nichol, R. C., Rosslowe, C. K., Simmons, B. D., & Smethurst, R. J. (2016). Galaxy Zoo: comparing the demographics of spiral arm number and a new method for correcting redshift bias. MNRAS, 461(4), 3663–3682.

160. Heckman, T. M. & Best, P. N. (2014). The Coevolution of Galaxies and Supermassive Black Holes: Insights from Surveys of the Contemporary Universe. ARA&A, 52, 589–660.

161. Heesen, V., Croston, J. H., Morganti, R., Hardcastle, M. J., Stewart, A. J., Best, P. N., Broderick, J. W., Brüggen, M., Brunetti, G., ChyŻy, K. T., Harwood, J. J., Haverkorn, M., Hess, K. M., Intema, H. T., Jamrozy, M., Kunert-Bajraszewska, M., McKean, J. P., Orrú, E., Röttgering, H. J. A., Shimwell, T. W., Shulevski, A., White, G. J., Wilcots, E. M., & Williams, W. L. (2018). LOFAR reveals the giant: a low-frequency radio continuum study of the outflow in the nearby FR I radio galaxy 3C 31. MNRAS, 474(4), 5049–5067.

162. Hendriks, J. N., Jidling, C., Wills, A., & Schön, T. B. (2018). Evaluating the squared-exponential covariance function in Gaussian processes with integral observations. *arXiv e-prints*, (pp. arXiv:1812.07319).

163. Hodgson, T., Vazza, F., Johnston-Hollitt, M., & McKinley, B. (2021). Figaro simulation: Filaments & galactic radio simulation. *Publications of the Astronomical Society of Australia*, 38, e047.

164. Hoeft, M. & Brüggen, M. (2007). Radio signature of cosmological structure formation shocks. MNRAS, 375(1), 77–91.

165. Hoffman, Y., Metuki, O., Yepes, G., Gottlöber, S., Forero-Romero, J. E., Libeskind, N. I., & Knebe, A. (2012). A kinematic classification of the cosmic web. MNRAS, 425(3), 2049–2057.

166. Högbom, J. A. (1974). Aperture Synthesis with a Non-Regular Distribution of Interferometer Baselines. A&AS, 15, 417.

167. Hurley-Walker, N., Callingham, J. R., Hancock, P. J., Franzen, T. M. O., Hindson, L., Kapińska, A. D., Morgan, J., Offringa, A. R., Wayth, R. B., Wu, C., Zheng, Q., Murphy, T., Bell, M. E., Dwarakanath, K. S., For, B., Gaensler, B. M., Johnston-Hollitt, M., Lenc, E., Procopio, P., Staveley-Smith, L., Ekers, R., Bowman, J. D., Briggs, F., Cappallo, R. J., Deshpande, A. A., Greenhill, L., Hazelton, B. J., Kaplan, D. L., Lonsdale, C. J., McWhirter, S. R., Mitchell, D. A., Morales, M. F., Morgan, E., Oberoi, D., Ord, S. M., Prabu, T., Shankar, N. U., Srivani, K. S., Subrahmanyan, R., Tingay, S. J., Webster, R. L., Williams, A., & Williams, C. L. (2017). GaLactic and Extragalactic All-sky Murchison Widefield Array (GLEAM) survey - I. A low-frequency extragalactic catalogue. MNRAS, 464, 1146–1167.

168. Ineson, J., Croston, J. H., Hardcastle, M. J., & Mingo, B. (2017). A representative survey of the dynamics and energetics of FR II radio galaxies. MNRAS, 467(2), 1586–1607.

169. Intema, H. T., van der Tol, S., Cotton, W. D., Cohen, A. S., van Bemmel, I. M., & Röttgering, H. J. A. (2009a). Ionospheric calibration of low frequency radio interferometric observations using the peeling scheme. I. Method description and first results. A&A, 501, 1185–1205.

170. Intema, H. T., van der Tol, S., Cotton, W. D., Cohen, A. S., van Bemmel, I. M., & Röttgering, H. J. A. (2009b). Ionospheric calibration of low frequency radio interferometric observations using the peeling scheme. I. Method description and first results. A&A, 501(3), 1185–1205.

171. Ishwara-Chandra, C. H. & Saikia, D. J. (1999). Giant radio sources. MNRAS, 309(1), 100–112.

172. Ishwara-Chandra, C. H., Taylor, A. R., Green, D. A., Stil, J. M., Vaccari, M., & Ocran, E. F. (2020). A wide-area GMRT 610-MHz survey of ELAIS N1 field. MNRAS, 497(4), 5383–5394.

173. Jamrozy, M., Konar, C., Machalski, J., & Saikia, D. J. (2008). A multifrequency study of giant radio sources - II. Spectral ageing analysis of the lobes of selected sources. MNRAS, 385(3), 1286–1296.

174. Jamrozy, M. & Machalski, J. (2002). Energy Density and Radiation Losses in Giant Radio Galaxies. In R. F. Green, E. Y. Khachikian, & D. B. Sanders (Eds.), *IAU Colloq. 184: AGN Surveys*, volume 284 of *Astronomical Society of the Pacific Conference Series* (pp. 295).

175. Jamrozy, M., Machalski, J., Mack, K. H., & Klein, U. (2005). Ageing analysis of the giant radio galaxy J1343+3758. A&A, 433(2), 467–477.

176. Jansen, R. A., Franx, M., Fabricant, D., & Caldwell, N. (2000). Surface Photometry of Nearby Field Galaxies: The Data. ApJS, 126(2), 271–329.

177. Jasche, J. & Kitaura, F. S. (2010a). Fast Hamiltonian sampling for large-scale structure inference. MNRAS, 407(1), 29–42.

178. Jasche, J. & Kitaura, F. S. (2010b). Fast Hamiltonian sampling for large-scale structure inference. MNRAS, 407(1), 29–42.

179. Jasche, J., Kitaura, F. S., Wandelt, B. D., & Enßlin, T. A. (2010a). Bayesian power-spectrum inference for large-scale structure data. MNRAS, 406(1), 60–85.

180. Jasche, J., Kitaura, F. S., Wandelt, B. D., & Enßlin, T. A. (2010b). Bayesian power-spectrum inference for large-scale structure data. MNRAS, 406(1), 60–85.

181. Jasche, J. & Lavaux, G. (2019). Physical Bayesian modelling of the non-linear matter distribution: New insights into the nearby universe. A&A, 625, A64.

182. Jasche, J., Leclercq, F., & Wandelt, B. D. (2015). Past and present cosmic structure in the SDSS DR7 main sample. J. Cosmology Astropart. Phys., 2015(1), 036.

183. Jasche, J. & Wandelt, B. D. (2012). Bayesian inference from photometric redshift surveys. MNRAS, 425(2), 1042–1056.

184. Jasche, J. & Wandelt, B. D. (2013). Bayesian physical reconstruction of initial conditions from large-scale structure surveys. MNRAS, 432(2), 894–913.

185. Jedamzik, K. & Pogosian, L. (2020). Relieving the Hubble Tension with Primordial Magnetic Fields. Phys. Rev. Lett., 125(18), 181302.

186. Jeffreys, H. (1925). On Certain Approximate Solutions of Linear Differential Equations of the Second Order*. *Proceedings of the London Mathematical Society*, s2-23(1), 428–436.

187. Jidling, C., Hendriks, J., Wahlström, N., Gregg, A., Schön, T. B., Wensrich, C., & Wills, A. (2018). Probabilistic modelling and reconstruction of strain. *Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms*, 436, 141 – 155.

188. Jones, D. H., Saunders, W., Colless, M., Read, M. A., Parker, Q. A., Watson, F. G., Campbell, L. A., Burkey, D., Mauch, T., Moore, L., Hartley, M., Cass, P., James, D., Russell, K., Fiegert, K., Dawe, J., Huchra, J., Jarrett, T., Lahav, O., Lucey, J., Mamon, G. A., Proust, D., Sadler, E. M., & Wakamatsu, K.-i. (2004). The 6dF Galaxy Survey: samples, observational techniques and the first data release. MNRAS, 355(3), 747–763.

189. Jones, F. C. & Ellison, D. C. (1991). The plasma physics of shock acceleration. Space Sci. Rev., 58(1), 259–346.

190. Jones, R. C. (1941). New calculus for the treatment of optical systems. I. Description and discussion of the calculus. *Journal of the Optical Society of America (1917-1983)*, 31, 488.

191. Jordan, C. H., Murray, S., Trott, C. M., Wayth, R. B., Mitchell, D. A., Rahimi, M., Pindor, B., Procopio, P., & Morgan, J. (2017). Characterization of the ionosphere above the Murchison Radio Observatory using the Murchison Widefield Array. MNRAS, 471(4), 3974–3987.

192. Kaiser, C. R. & Alexander, P. (1997). A self-similar model for extragalactic radio sources. MNRAS, 286(1), 215–222.

193. Kale, R. (2020). Low frequency observations of radio relics and halos. In K. Asada, E. de Gouveia Dal Pino, M. Giroletti, H. Nagai, & R. Nemmen (Eds.), *IAU Symposium*, volume 342 of *IAU Symposium* (pp. 37–43).

194. Kandus, A., Kunze, K. E., & Tsagas, C. G. (2011). Primordial magnetogenesis. Phys. Rep., 505(1), 1–58.

195. Kannappan, S. J., Guie, J. M., & Baker, A. J. (2009). E/So Galaxies on the Blue Color-Stellar Mass Sequence at $z = 0$: Fading Mergers or Future Spirals? *The Astronomical Journal*, 138(2), 579–597.

196. Kannappan, S. J., Stark, D. V., Eckert, K. D., Moffett, A. J., Wei, L. H., Pisano, D. J., Baker, A. J., Vogel, S. N., Fabricant, D. G., Laine, S., Norris, M. A., Jogee, S., Lepore, N., Hough, L. E., & Weinberg-Wolf, J. (2013). Connecting Transitions in Galaxy Properties to Refueling. ApJ, 777(1), 42.

197. Kazemi, S., Yatawatta, S., Zaroubi, S., Lampropoulos, P., de Bruyn, A. G., Koopmans, L. V. E., & Noordam, J. (2011). Radio interferometric calibration using the SAGE algorithm. MNRAS, 414, 1656–1666.

198. Keller, J., Bellman, R., & Society, A. M. (1964). *Stochastic Equations and Wave Propagation in Random Media*. Proceedings of symposia in applied mathematics. American Mathematical Society.

199. Keshet, U., Waxman, E., & Loeb, A. (2004). Imprint of Intergalactic Shocks on the Radio Sky. ApJ, 617(1), 281–302.

200. King, A. (2016). How big can a black hole grow? MNRAS, 456(1), L109–L112.

201. King, A. & Pounds, K. (2015). Powerful outflows and feedback from active galactic nuclei. *Annual Review of Astronomy and Astrophysics*, 53(1), 115–154.

202. Kirk, J. G. & Schneider, P. (1987). On the Acceleration of Charged Particles at Relativistic Shock Fronts. ApJ, 315, 425.

203. Kitaura, F.-S., Ata, M., Rodríguez-Torres, S. A., Hernández-Sánchez, M., Balaguera-Antolínez, A., & Yepes, G. (2021). COSMIC BIRTH: efficient Bayesian inference of the evolving cosmic web from galaxy surveys. MNRAS, 502(3), 3456–3475.

204. Kitaura, F. S. & Enßlin, T. A. (2008). Bayesian reconstruction of the cosmological large-scale structure: methodology, inverse algorithms and numerical optimization. MNRAS, 389(2), 497–544.

205. Kivelson, M. G. & Russell, C. T. (1995). *Introduction to Space Physics*.

206. Kolmogorov, A. N. (1956). *Foundations of the theory of probability*. Chelsea Pub Co, 2 english edition.

207. Kolmogorov, A. N. (1991). The local structure of turbulence in incompressible viscous fluid for very large Reynolds numbers. *Proceedings of the Royal Society of London Series A*, 434, 9–13.

208. Koopmans, L. V. E. (2010). Ionospheric Power-spectrum Tomography in Radio Interferometry. ApJ, 718, 963–971.

209. Kormendy, J. & Ho, L. C. (2013). Coevolution (Or Not) of Supermassive Black Holes and Host Galaxies. ARA&A, 51(1), 511–653.

210. Krause, M., Alexander, P., Riley, J., & Hopton, D. (2012). A new connection between the jet opening angle and the large-scale morphology of extragalactic radio sources. MNRAS, 427(4), 3196–3208.

211. Kroupa, P. (2001). On the variation of the initial mass function. MNRAS, 322(2), 231–246.

212. Krumholz, M. R. & Federrath, C. (2019). The role of magnetic fields in setting the star formation rate and the initial mass function. *Frontiers in Astronomy and Space Sciences*, 6.

213. Krymskii, G. F. (1977). A regular mechanism for the acceleration of charged particles on the front of a shock wave. *Akademiia Nauk SSSR Doklady*, 234, 1306–1308.

214. Kuminski, E. & Shamir, L. (2016). A Computer-generated Visual Morphology Catalog of ~3,000,000 SDSS Galaxies. ApJS, 223(2), 20.

215. Kuźmicz, A. & Jamrozy, M. (2021). Giant Radio Quasars: Sample and Basic Properties. ApJS, 253(1), 25.

216. Kuźmicz, A., Jamrozy, M., Bronarska, K., Janda-Boczar, K., & Saikia, D. J. (2018). An Updated Catalog of Giant Radio Sources. ApJS, 238(1), 9.

217. La Porta, L., Burigana, C., Reich, W., & Reich, P. (2008). The impact of Galactic synchrotron emission on CMB anisotropy measurements. I. Angular power spectrum analysis of total intensity all-sky surveys. A&A, 479(3), 641–654.

218. Lacy, M., Baum, S. A., Chandler, C. J., Chatterjee, S., Clarke, T. E., Deustua, S., English, J., Farnes, J., Gaensler, B. M., Gugliucci, N., Hallinan, G., Kent, B. R., Kimball, A., Law, C. J., Lazio, T. J. W., Marvil, J., Mao, S. A., Medlin, D., Mooley, K., Murphy, E. J., Myers, S., Osten, R., Richards, G. T., Rosolowsky, E., Rudnick, L., Schinzel, F., Sivakoff, G. R., Sjouwerman, L. O., Taylor, R., White, R. L., Wrobel, J., Andernach, H., Beasley, A. J., Berger, E., Bhatnager, S., Birkinshaw, M., Bower, G. C., Brandt, W. N., Brown, S., Burke-Spolaor, S., Butler, B. J., Comerford, J., Demorest, P. B., Fu, H., Giacintucci, S., Golap, K., Güth, T., Hales, C. A., Hiriart, R., Hodge, J., Horesh, A., Ivezić, Ž., Jarvis, M. J., Kamble, A., Kassim, N., Liu, X., Loinard, L., Lyons, D. K., Masters, J., Mezcua, M., Moellenbrock, G. A., Mroczkowski, T., Nyland, K., O'Dea, C. P., O'Sullivan, S. P., Peters, W. M., Radford, K., Rao, U., Robnett, J., Salcido, J., Shen, Y., Sobotka, A., Witz, S., Vaccari, M., van Weeren, R. J., Vargas, A., Williams, P. K. G., & Yoon, I. (2020). The Karl G. Jansky Very Large Array Sky Survey (VLASS). Science Case and Survey Design. PASP, 132(1009), 035001.

219. Lacy, M., Rawlings, S., Saunders, R., & Warner, P. J. (1993). 8C 0821+695 : a giant radio galaxy at Z = 0.538. MNRAS, 264, 721–728.

220. Laing, R. A. & Bridle, A. H. (2014). Systematic properties of decelerating relativistic jets in low-luminosity radio galaxies. MNRAS, 437(4), 3405–3441.

221. Lan, T.-W. & Prochaska, J. X. (2021). On the environments of giant radio galaxies. MNRAS, 502(4), 5104–5114.

222. Lara, L., Mack, K. H., Lacy, M., Klein, U., Cotton, W. D., Feretti, L., Giovannini, G., & Murgia, M. (2000). The giant radio galaxy 8C 0821+695 and its environment. A&A, 356, 63–72.

223. Lavaux, G. & Jasche, J. (2016). Unmasking the masked Universe: the 2M++ catalogue through Bayesian eyes. MNRAS, 455(3), 3169–3179.

224. Lavaux, G., Jasche, J., & Leclercq, F. (2019). Systematic-free inference of the cosmic matter density field from SDSS3-BOSS data. *arXiv e-prints*, (pp. arXiv:1909.06396).

225. Lavaux, G. & Wandelt, B. D. (2010). Precision cosmology with voids: definition, methods, dynamics. MNRAS, 403(3), 1392–1408.

226. Leclercq, F., Jasche, J., Lavaux, G., Wand elt, B., & Percival, W. (2017). The phase-space structure of nearby dark matter as constrained by the SDSS. J. Cosmology Astropart. Phys., 2017(6), 049.

227. Leclercq, F., Jasche, J., & Wandelt, B. (2015). Bayesian analysis of the dynamic cosmic web in the SDSS galaxy survey. J. Cosmology Astropart. Phys., 2015(6), 015.

228. Leclercq, F., Lavaux, G., Jasche, J., & Wandelt, B. (2016). Comparing cosmic web classifiers using information theory. J. Cosmology Astropart. Phys., 2016(8), 027.

229. Li, F., Zhang, H., Liu, S., Zhang, L., Ni, L. M., Shum, H.-Y., et al. (2022). Mask dino: Towards a unified transformer-based framework for object detection and segmentation. *arXiv preprint arXiv:2206.02777*.

230. Li, Y.-L., Konhauser, K. O., & Zhai, M. (2017). The formation of magnetite in the early Archean oceans. *Earth and Planetary Science Letters*, 466, 103–114.

231. Linde, A. (2008). *Inflationary Cosmology*, volume 738, (pp.1). Springer-Verlag Berlin Heidelberg.

232. Liu, Z., Lin, Y., Cao, Y., Hu, H., Wei, Y., Zhang, Z., Lin, S., & Guo, B. (2021). Swin transformer: Hierarchical vision transformer using shifted windows. In *Proceedings of the IEEE/CVF International Conference on Computer Vision* (pp. 10012–10022).

233. Liu, Z., Mao, H., Wu, C.-Y., Feichtenhofer, C., Darrell, T., & Xie, S. (2022). A convnet for the 2020s. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition* (pp. 11976–11986).

234. Locatelli, N. T., Rajpurohit, K., Vazza, F., Gastaldello, F., Dallacasa, D., Bonafede, A., Rossetti, M., Stuardi, C., Bonassieux, E., Brunetti, G., Brüggen, M., & Shimwell, T. (2020). Discovering the most elusive radio relic in the sky: diffuse shock acceleration caught in the act? MNRAS, 496(1), L48–L53.

235. Lochner, M. & Bassett, B. A. (2021). ASTRONOMALY: Personalised active anomaly detection in astronomical data. *Astronomy and Computing*, 36, 100481.

236. Lockman, F. J., Jahoda, K., & McCammon, D. (1986). The Structure of Galactic H i in Directions of Low Total Column Density. ApJ, 302, 432.

237. Loi, S. T., Murphy, T., Cairns, I. H., Menk, F. W., Waters, C. L., Erickson, P. J., Trott, C. M., Hurley-Walker, N., Morgan, J., Lenc, E., Offringa, A. R., Bell, M. E., Ekers, R. D., Gaensler, B. M., Lonsdale, C. J., Feng, L., Hancock, P. J., Kaplan, D. L., Bernardi, G., Bowman, J. D., Briggs, F., Cappallo, R. J., Deshpande, A. A., Greenhill, L. J., Hazelton, B. J., Johnston-Hollitt, M., McWhirter, S. R., Mitchell, D. A., Morales, M. F., Morgan, E., Oberoi, D., Ord, S. M., Prabu, T., Shankar, N. U., Srivani, K. S., Subrahmanyan, R., Tingay, S. J., Wayth, R. B., Webster, R. L., Williams, A., & Williams, C. L. (2015). Real-time imaging of density ducts between the plasmasphere and ionosphere. Geophys. Res. Lett., 42, 3707–3714.

238. Lovisari, L., Ettori, S., Gaspari, M., & Giles, P. A. (2021). Scaling properties of galaxy groups. *Universe*, 7(5).

239. Lovisari, L., Reiprich, T. H., & Schellenberger, G. (2015). Scaling properties of a complete X-ray selected galaxy group sample. A&A, 573, A118.

240. Lu, R.-S., Asada, K., Krichbaum, T. P., Park, J., Tazaki, F., Pu, H.-Y., Nakamura, M., Lobanov, A., Hada, K., Akiyama, K., Kim, J.-Y., Marti-Vidal, I., Gómez, J. L., Kawashima, T., Yuan, F., Ros, E., Alef, W., Britzen, S., Bremer, M., Broderick, A. E., Doi, A., Giovannini, G., Giroletti, M., Ho, P. T. P., Honma, M., Hughes, D. H., Inoue, M., Jiang, W., Kino, M., Koyama, S., Lindqvist, M., Liu, J., Marscher, A. P., Matsushita, S., Nagai, H., Rottmann, H., Savolainen, T., Schuster, K.-F., Shen, Z.-Q., de Vicente, P., Walker, R. C., Yang, H., Zensus, J. A., Algaba, J. C., Allardi, A., Bach, U., Berthold, R., Bintley, D., Byun, D.-Y., Casadio, C., Chang, S.-H., Chang, C.-C., Chang, S.-C., Chen, C.-C., Chen, M.-T., Chilson, R., Chuter, T. C., Conway, J., Crew, G. B., Dempsey, J. T., Dornbusch, S., Faber, A., Friberg, P., García, J. G., Garrido, M. G., Han, C.-C., Han, K.-C., Hasegawa, Y., Herrero-Illana, R., Huang, Y.-D., Huang, C.-W. L., Impellizzeri, V., Jiang, H., Jinchi, H., Jung, T., Kallunki, J., Kirves, P., Kimura, K., Koay, J. Y., Koch, P. M., Kramer, C., Kraus, A., Kubo, D., Kuo, C.-Y., Li, C.-T., Lin, L. C.-C., Liu, C.-T., Liu, K.-Y., Lo, W.-P., Lu, L.-M., MacDonald, N., Martin-Cocher, P., Messias, H., Meyer-Zhao, Z., Minter, A., Nair, D. G., Nishioka, H., Norton, T. J., Nystrom, G., Ogawa, H., Oshiro, P., Patel, N. A., Pen, U.-L., Pidopryhora, Y., Pradel, N., Raffin, P. A., Rao, R., Ruiz, I., Sanchez, S., Shaw, P., Snow, W., Sridharan, T. K.,

Srinivasan, R., Tercero, B., Torne, P., Traianou, E., Wagner, J., Walther, C., Wei, T.-S., Yang, J., & Yu, C.-Y. (2023). A ring-like accretion structure in M87 connecting its black hole and jet. Nature, 616(7958), 686–690.

241. Maccagni, F. M., Murgia, M., Serra, P., Govoni, F., Morokuma-Matsui, K., Kleiner, D., Buchner, S., Józsa, G. I. G., Kamphuis, P., Makhathini, S., Molnár, D. C., Prokhorov, D. A., Ramaila, A., Ramatsoku, M., Thorat, K., & Smirnov, O. (2020). The flickering nuclear activity of Fornax A. A&A, 634, A9.

242. Machalski, J. (2011). A multifrequency study of giant radio sources - IV. Length/luminosity asymmetries and dynamical evolution of the lobes of selected sources. MNRAS, 413(4), 2429–2438.

243. Machalski, J. & Jamrozy, M. (2000). J1343+3758: the third largest FRII-type radio galaxy in the Universe. A&A, 363, L17–L20.

244. Machalski, J. & Jamrozy, M. (2006). The new sample of giant radio sources. III. Statistical trends and correlations. A&A, 454(1), 95–102.

245. Machalski, J., Jamrozy, M., & Zola, S. (2001). The new sample of Giant radio sources. I. Radio imaging, optical identification and spectroscopy of selected candidates. A&A, 371, 445–469.

246. Machalski, J., Jamrozy, M., Zola, S., & Koziel, D. (2006). The new sample of giant radio sources. II. Update of optical counterparts, further spectroscopy of identified faint host galaxies, high-frequency radio maps, and polarisation properties of the sources. A&A, 454(1), 85–94.

247. Machalski, J., Koziel-Wierzbowska, D., & Jamrozy, M. (2007). Giant Radio Galaxies as a Probe of the Cosmological Evolution of the IGM. I.Preliminary Deep Detections and Low-Resolution Spectroscopy with SALT. *AcA*, 57, 227–248.

248. Machalski, J., Kozieł-Wierzbowska, D., Jamrozy, M., & Saikia, D. J. (2008). J1420-0545: The Radio Galaxy Larger than 3C 236. ApJ, 679(1), 149–155.

249. Mack, K. H., Klein, U., O'Dea, C. P., Willis, A. G., & Saripalli, L. (1998). Spectral indices, particle ages, and the ambient medium of giant radio galaxies. A&A, 329, 431–442.

250. Macquart, J. P., Prochaska, J. X., McQuinn, M., Bannister, K. W., Bhandari, S., Day, C. K., Deller, A. T., Ekers, R. D., James, C. W., Marnoch, L., Osłowski, S., Phillips, C., Ryder, S. D., Scott, D. R., Shannon, R. M., & Tejos, N. (2020). A census of baryons in the Universe from localized fast radio bursts. Nature, 581(7809), 391–395.

251. Mahajan, S., Drinkwater, M. J., Driver, S., Hopkins, A. M., Graham, A. W., Brough, S., Brown, M. J. I., Holwerda, B. W., Owers, M. S., & Pimbblet, K. A. (2018). Galaxy And Mass Assembly (GAMA): blue spheroids within 87 Mpc. MNRAS, 475(1), 788–799.

252. Mahatma, V. H., Hardcastle, M. J., Williams, W. L., Best, P. N., Croston, J. H., Duncan, K., Mingo, B., Morganti, R., Brienza, M., Cochrane, R. K., Gürkan, G., Harwood, J. J., Jarvis, M. J., Jamrozy, M., Jurlin, N., Morabito, L. K., Röttgering, H. J. A., Sabater, J., Shimwell, T. W., Smith, D. J. B., Shulevski, A., & Tasse, C. (2019). LoTSS DR1: Double-double radio galaxies in the HETDEX field. A&A, 622, A13.

253. Mahato, M., Dabhade, P., Saikia, D. J., Combes, F., Bagchi, J., Ho, L. C., & Raychaudhury, S. (2022). Search and analysis of giant radio galaxies with associated nuclei (SAGAN). III. New insights into giant radio quasars. A&A, 660, A59.

254. Mahony, E. K., Morganti, R., Prandoni, I., van Bemmel, I. M., Shimwell, T. W., Brienza, M., Best, P. N., Brüggen, M., Calistro Rivera, G., de Gasperin, F., Hardcastle, M. J., Harwood, J. J., Heald, G., Jarvis, M. J., Mandal, S., Miley, G. K., Retana-Montenegro, E., Röttgering, H. J. A., Sabater, J., Tasse, C., van Velzen, S., van Weeren, R. J., Williams, W. L., & White, G. J. (2016). The Lockman Hole project: LOFAR observations and spectral index properties of low-frequency radio sources. MNRAS, 463(3), 2997–3020.

255. Makarov, V. V. & Efroimsky, M. (2014). Tidal Dissipation in a Homogeneous Spherical Body. II. Three Examples: Mercury, IO, and Kepler-10 b. ApJ, 795(1), 7.

256. Malanushenko, A., Cheung, M. C. M., DeForest, C. E., Klimchuk, J. A., & Rempel, M. (2022). The Coronal Veil. ApJ, 927(1), 1.

257. Malarecki, J. M., Jones, D. H., Saripalli, L., Staveley-Smith, L., & Subrahmanyan, R. (2015). Giant radio galaxies - II. Tracers of large-scale structure. MNRAS, 449(1), 955–986.

258. Malarecki, J. M., Staveley-Smith, L., Saripalli, L., Subrahmanyan, R., Jones, D. H., Duffy, A. R., & Rioja, M. (2013). Giant radio galaxies - I. Intergalactic barometers. MNRAS, 432(1), 200–224.

259. Malevergne, Y., Pisarenko, V., & Sornette, D. (2011). Testing the Pareto against the lognormal distributions with the uniformly most powerful unbiased test applied to the distribution of cities. Phys. Rev. E, 83(3), 036111.

260. Malkov, M. A. & Drury, L. O. (2001). Nonlinear theory of diffusive acceleration of particles by shock waves. *Reports on Progress in Physics*, 64(4), 429–481.

261. Mamon, G. A., Trevisan, M., Thuan, T. X., Gallazzi, A., & Davé, R. (2020). The frequency of very young galaxies in the

local Universe - II. The view from SDSS spectra. MNRAS, 492(2), 1791–1811.

262. Mandal, S., Intema, H. T., van Weeren, R. J., Shimwell, T. W., Botteon, A., Brunetti, G., de Gasperin, F., Brüggen, M., Di Gennaro, G., Kraft, R., Röttgering, H. J. A., Hardcastle, M., & Tasse, C. (2020). Revived fossil plasma sources in galaxy clusters. A&A, 634, A4.

263. Marinacci, F., Vogelsberger, M., Pakmor, R., Torrey, P., Springel, V., Hernquist, L., Nelson, D., Weinberger, R., Pillepich, A., Naiman, J., & Genel, S. (2018). First results from the IllustrisTNG simulations: radio haloes and magnetic fields. MNRAS, 480(4), 5113–5139.

264. Masini, A., Celotti, A., Grandi, P., Moravec, E., & Williams, W. L. (2021). A new distant giant radio galaxy in the Boötes field serendipitously detected by Chandra. A&A, 650, A51.

265. Mason, A., Morrison, P., & Sadun, A. C. (1988). The radio rings of Hercules A. Nature, 333(6174), 640–642.

266. Massaro, F., Giroletti, M., D'Abrusco, R., Masetti, N., Paggi, A., Cowperthwaite, P. S., Tosti, G., & Funk, S. (2014). The Low-frequency Radio Catalog of Flat-spectrum Sources. ApJS, 213(1), 3.

267. Matthews, A. G. d. G., van der Wilk, M., Nickson, T., Fujii, K., Boukouvalas, A., León-Villagrá, P., Ghahramani, Z., & Hensman, J. (2017). GPflow: A Gaussian process library using TensorFlow. *Journal of Machine Learning Research*, 18(40), 1–6.

268. McKinley, B., Tingay, S. J., Gaspari, M., Kraft, R. P., Matherne, C., Offringa, A. R., McDonald, M., Calzadilla, M. S., Veilleux, S., Shabala, S. S., Gwyn, S. D. J., Bland-Hawthorn, J., Crnojević, D., Gaensler, B. M., & Johnston-Hollitt, M. (2022). Multi-scale feedback and feeding in the closest radio galaxy Centaurus A. *Nature Astronomy*, 6, 109–120.

269. McNamara, B. R. & Nulsen, P. E. J. (2012). Mechanical feedback from active galactic nuclei in galaxies, groups and clusters. *New Journal of Physics*, 14(5), 055023.

270. Mevius, M., van der Tol, S., Pandey, V. N., Vedantham, H. K., Brentjens, M. A., de Bruyn, A. G., Abdalla, F. B., Asad, K. M. B., Bregman, J. D., Brouw, W. N., Bus, S., Chapman, E., Ciardi, B., Fernandez, E. R., Ghosh, A., Harker, G., Iliev, I. T., Jelić, V., Kazemi, S., Koopmans, L. V. E., Noordam, J. E., Offringa, A. R., Patil, A. H., van Weeren, R. J., Wijnholds, S., Yatawatta, S., & Zaroubi, S. (2016). Probing ionospheric structures using the LOFAR radio telescope. *Radio Science*, 51, 927–941.

271. Miley, G. & De Breuck, C. (2008). Distant radio galaxies and their environments. A&A Rev., 15(2), 67–144.

272. Miley, G. G. K. (2010). LOFAR - Origins and Hopes. In J. van Leeuwen (Ed.), *ISKAF2010 Science Meeting* (pp.40).

273. Mingo, B., Croston, J. H., Hardcastle, M. J., Best, P. N., Duncan, K. J., Morganti, R., Rottgering, H. J. A., Sabater, J., Shimwell, T. W., Williams, W. L., Brienza, M., Gurkan, G., Mahatma, V. H., Morabito, L. K., Prandoni, I., Bondi, M., Ineson, J., & Mooney, S. (2019). Revisiting the Fanaroff-Riley dichotomy and radio-galaxy morphology with the LOFAR Two-Metre Sky Survey (LoTSS). MNRAS, 488(2), 2701–2721.

274. Miniati, F., Jones, T. W., Kang, H., & Ryu, D. (2001). Cosmic-Ray Electrons in Groups and Clusters of Galaxies: Primary and Secondary Populations from a Numerical Cosmological Simulation. ApJ, 562(1), 233–253.

275. Mohan, N. & Rafferty, D. (2015). PyBDSF: Python Blob Detection and Source Finder. Astrophysics Source Code Library.

276. Morabito, L. K., Jackson, N. J., Mooney, S., Sweijen, F., Badole, S., Kukreti, P., Venkattu, D., Groeneveld, C., Kappes, A., Bonnassieux, E., Drabent, A., Iacobelli, M., Croston, J. H., Best, P. N., Bondi, M., Callingham, J. R., Conway, J. E., Deller, A. T., Hardcastle, M. J., McKean, J. P., Miley, G. K., Moldon, J., Röttgering, H. J. A., Tasse, C., Shimwell, T. W., van Weeren, R. J., Anderson, J. M., Asgekar, A., Avruch, I. M., van Bemmel, I. M., Bentum, M. J., Bonafede, A., Brouw, W. N., Butcher, H. R., Ciardi, B., Corstanje, A., Coolen, A., Damstra, S., de Gasperin, F., Duscha, S., Eislöffel, J., Engels, D., Falcke, H., Garrett, M. A., Griessmeier, J., Gunst, A. W., van Haarlem, M. P., Hoeft, M., van der Horst, A. J., Jütte, E., Kadler, M., Koopmans, L. V. E., Krankowski, A., Mann, G., Nelles, A., Oonk, J. B. R., Orru, E., Paas, H., Pandey, V. N., Pizzo, R. F., Pandey-Pommier, M., Reich, W., Rothkaehl, H., Ruiter, M., Schwarz, D. J., Shulevski, A., Soida, M., Tagger, M., Vocks, C., Wijers, R. A. M. J., Wijnholds, S. J., Wucknitz, O., Zarka, P., & Zucca, P. (2022). Sub-arcsecond imaging with the International LOFAR Telescope. I. Foundational calibration strategy and pipeline. A&A, 658, A1.

277. Mostert, R. & Oei, M. (2023). Constraining the giant radio galaxy population with machine learning–accelerated detection and Bayesian inference. *in prep.*

278. Mostert, R. I. J., Duncan, K. J., Alegre, L., Röttgering, H. J. A., Williams, W. L., Best, P. N., Hardcastle, M. J., & Morganti, R. (2022). Radio source-component association for the LOFAR Two-metre Sky Survey with region-based convolutional neural networks. A&A, 668, A28.

279. Mostert, R. I. J., Duncan, K. J., Röttgering, H. J. A., Polsterer, K. L., Best, P. N., Brienza, M., Brüggen, M., Hardcastle, M. J., Jurlin, N., Mingo, B., Morganti, R., Shimwell, T., Smith, D., & Williams, W. L. (2021). Unveiling the rarest morphologies of the LOFAR Two-metre Sky Survey radio source population with self-organised maps. A&A, 645, A89.

280. Mostert, R. I. J., Morganti, R., Brienza, M., Duncan, K. J., Oei, M. S. S. L., Röttgering, H. J. A., Alegre, L., Hardcastle,

M. J., & Jurlin, N. (2023). Finding AGN remnant candidates based on radio morphology with machine learning. A&A, 674, A208.

281. Mullis, C. R., Henry, J. P., Gioia, I. M., Böhringer, H., Briel, U. G., Voges, W., & Huchra, J. P. (2001). The North Ecliptic Pole Supercluster. ApJ, 553(2), L115–L118.

282. Murthy, S. K., Kasif, S., Salzberg, S., & Beigel, R. (1993). Oc1: A randomized algorithm for building oblique decision trees. In *Proceedings of AAAI*, volume 93 (pp. 322–327).: Citeseer.

283. Myers, S. T. & Spangler, S. R. (1985). Synchrotron aging in the lobes of luminous radio galaxies. ApJ, 291, 52–62.

284. Naiman, J. P., Pillepich, A., Springel, V., Ramirez-Ruiz, E., Torrey, P., Vogelsberger, M., Pakmor, R., Nelson, D., Marinacci, F., Hernquist, L., Weinberger, R., & Genel, S. (2018). First results from the IllustrisTNG simulations: a tale of two elements - chemical evolution of magnesium and europium. MNRAS, 477(1), 1206–1224.

285. Nakamura, M., Asada, K., Hada, K., Pu, H.-Y., Noble, S., Tseng, C., Toma, K., Kino, M., Nagai, H., Takahashi, K., Algaba, J.-C., Orienti, M., Akiyama, K., Doi, A., Giovannini, G., Giroletti, M., Honma, M., Koyama, S., Lico, R., Niinuma, K., & Tazaki, F. (2018). Parabolic Jets from the Spinning Black Hole in M87. ApJ, 868(2), 146.

286. Narayan, R., Igumenshchev, I. V., & Abramowicz, M. A. (2003). Magnetically Arrested Disk: an Energetically Efficient Accretion Flow. PASJ, 55, L69–L72.

287. Navarro, J. F., Frenk, C. S., & White, S. D. M. (1996). The Structure of Cold Dark Matter Halos. ApJ, 462, 563.

288. Nelson, D., Pillepich, A., Springel, V., Weinberger, R., Hernquist, L., Pakmor, R., Genel, S., Torrey, P., Vogelsberger, M., Kauffmann, G., Marinacci, F., & Naiman, J. (2018). First results from the IllustrisTNG simulations: the galaxy colour bimodality. MNRAS, 475(1), 624–647.

289. Neronov, A. & Vovk, I. (2010). Evidence for Strong Extragalactic Magnetic Fields from Fermi Observations of TeV Blazars. *Science*, 328(5974), 73.

290. Nicastro, F., Kaastra, J., Krongold, Y., Borgani, S., Branchini, E., Cen, R., Dadina, M., Danforth, C. W., Elvis, M., Fiore, F., Gupta, A., Mathur, S., Mayya, D., Paerels, F., Piro, L., Rosa-Gonzalez, D., Schaye, J., Shull, J. M., Torres-Zafra, J., Wijers, N., & Zappacosta, L. (2018). Observations of the missing baryons in the warm–hot intergalactic medium. Nature, 558(7710), 406–409.

291. Nobels, F. S. J., Schaye, J., Schaller, M., Bahé, Y. M., & Chaikin, E. (2022). The interplay between AGN feedback and precipitation of the intracluster medium in simulations of galaxy groups and clusters. MNRAS, 515(4), 4838–4859.

292. Nolting, C., Jones, T. W., O'Neill, B. J., & Mendygral, P. J. (2019a). Interactions between Radio Galaxies and Cluster Shocks. I. Jet Axes Aligned with Shock Normals. ApJ, 876(2), 154.

293. Nolting, C., Jones, T. W., O'Neill, B. J., & Mendygral, P. J. (2019b). Simulated Interactions between Radio Galaxies and Cluster Shocks. II. Jet Axes Orthogonal to Shock Normals. ApJ, 885(1), 80.

294. Norris, R. P., Hopkins, A. M., Afonso, J., Brown, S., Condon, J. J., Dunne, L., Feain, I., Hollow, R., Jarvis, M., Johnston-Hollitt, M., Lenc, E., Middelberg, E., Padovani, P., Prandoni, I., Rudnick, L., Seymour, N., Umana, G., Andernach, H., Alexander, D. M., Appleton, P. N., Bacon, D., Banfield, J., Becker, W., Brown, M. J. I., Ciliegi, P., Jackson, C., Eales, S., Edge, A. C., Gaensler, B. M., Giovannini, G., Hales, C. A., Hancock, P., Huynh, M. T., Ibar, E., Ivison, R. J., Kennicutt, R., Kimball, A. E., Koekemoer, A. M., Koribalski, B. S., López-Sánchez, Á. R., Mao, M. Y., Murphy, T., Messias, H., Pimbblet, K. A., Raccanelli, A., Randall, K. E., Reiprich, T. H., Roseboom, I. G., Röttgering, H., Saikia, D. J., Sharp, R. G., Slee, O. B., Smail, I., Thompson, M. A., Urquhart, J. S., Wall, J. V., & Zhao, G. B. (2011). EMU: Evolutionary Map of the Universe. PASA, 28(3), 215–248.

295. Novikov, I. D. & Thorne, K. S. (1973). Astrophysics of black holes. In *Black Holes (Les Astres Occlus)* (pp. 343–450).

296. Ochsenbein, F., Bauer, P., & Marcout, J. (2000). The VizieR database of astronomical catalogues. A&AS, 143, 23–32.

297. O'Dea, C. P., Baum, S. A., & Stanghellini, C. (1991). What Are the Gigahertz Peaked-Spectrum Radio Sources? ApJ, 380, 66.

298. O'Dea, C. P. & Saikia, D. J. (2021). Compact steep-spectrum and peaked-spectrum radio sources. A&A Rev., 29(1), 3.

299. Oei, M. S. S. L., van Weeren, R. J., de Gasperin, F., Botteon, A., Hardcastle, M. J., Shimwell, T. W., & Röttgering, H. J. A. (in prep.a). The Milky Way in Stokes I at metre wavelengths. A&A.

300. Oei, M. S. S. L., van Weeren, R. J., Gast, A. R. D. J. G. I. B., Botteon, A., Hardcastle, M. J., Dabhade, P., Shimwell, T. W., Röttgering, H. J. A., & Drabent, A. (2023a). Measuring the giant radio galaxy length distribution with the LoTSS. A&A, 672, A163.

301. Oei, M. S. S. L., van Weeren, R. J., Hardcastle, M. J., Botteon, A., Shimwell, T. W., Dabhade, P., Gast, A. R. D. J. G. I. B., Röttgering, H. J. A., Brüggen, M., Tasse, C., Williams, W. L., & Shulevski, A. (2022a). The discovery of a radio galaxy of at least 5 Mpc. A&A, 660, A2.

302. Oei, M. S. S. L., van Weeren, R. J., Hardcastle, M. J., Gast, A. R. D. J. G. I. B., Leclercq, F., Röttgering, H. J. A., Dabhade, P., Shimwell, T. W., & Botteon, A. (in prep.b). Do luminous giants populate special large-scale environments? Or: the radio luminosity–Cosmic Web density relation for radio galaxies. A&A.

303. Oei, M. S. S. L., van Weeren, R. J., Hardcastle, M. J., Vazza, F., Shimwell, T. W., Leclercq, F., Brüggen, M., & Röttgering, H. J. A. (2023b). An intergalactic medium temperature from a giant radio galaxy. MNRAS, 518(1), 240–256.

304. Oei, M. S. S. L., van Weeren, R. J., Vazza, F., Leclercq, F., Gopinath, A., & Röttgering, H. J. A. (2022b). Filamentary baryons and where to find them. A forecast of synchrotron radiation from merger and accretion shocks in the local Cosmic Web. A&A, 662, A87.

305. Offringa, A. R., McKinley, B., Hurley-Walker, N., Briggs, F. H., Wayth, R. B., Kaplan, D. L., Bell, M. E., Feng, L., Neben, A. R., Hughes, J. D., Rhee, J., Murphy, T., Bhat, N. D. R., Bernardi, G., Bowman, J. D., Cappallo, R. J., Corey, B. E., Deshpande, A. A., Emrich, D., Ewall-Wice, A., Gaensler, B. M., Goeke, R., Greenhill, L. J., Hazelton, B. J., Hindson, L., Johnston-Hollitt, M., Jacobs, D. C., Kasper, J. C., Kratzenberg, E., Lenc, E., Lonsdale, C. J., Lynch, M. J., McWhirter, S. R., Mitchell, D. A., Morales, M. F., Morgan, E., Kudryavtseva, N., Oberoi, D., Ord, S. M., Pindor, B., Procopio, P., Prabu, T., Riding, J., Roshi, D. A., Shankar, N. U., Srivani, K. S., Subrahmanyan, R., Tingay, S. J., Waterson, M., Webster, R. L., Whitney, A. R., Williams, A., & Williams, C. L. (2014). WSCLEAN: an implementation of a fast, generic wide-field imager for radio astronomy. MNRAS, 444(1), 606–619.

306. Offringa, A. R. & Smirnov, O. (2017). An optimized algorithm for multiscale wideband deconvolution of radio astronomical images. MNRAS, 471(1), 301–316.

307. O'Sullivan, E., Vrtilek, J. M., David, L. P., Giacintucci, S., Zezas, A., Ponman, T. J., Mamon, G. A., Nulsen, P., & Raychaudhury, S. (2014). Deep Chandra Observations of HCG 16. II. The Development of the Intra-group Medium in a Spiral-rich Group. ApJ, 793(2), 74.

308. O'Sullivan, S. P., Brüggen, M., Vazza, F., Carretti, E., Locatelli, N. T., Stuardi, C., Vacca, V., Vernstrom, T., Heald, G., Horellou, C., Shimwell, T. W., Hardcastle, M. J., Tasse, C., & Röttgering, H. (2020). New constraints on the magnetization of the cosmic web using LOFAR Faraday rotation observations. MNRAS, 495(3), 2607–2619.

309. O'Sullivan, S. P., Feain, I. J., McClure-Griffiths, N. M., Ekers, R. D., Carretti, E., Robishaw, T., Mao, S. A., Gaensler, B. M., Bland-Hawthorn, J., & Stawarz, Ł. (2013). Thermal Plasma in the Giant Lobes of the Radio Galaxy Centaurus A. ApJ, 764(2), 162.

310. O'Sullivan, S. P., Machalski, J., Van Eck, C. L., Heald, G., Brüggen, M., Fynbo, J. P. U., Heintz, K. E., Lara-Lopez, M. A., Vacca, V., Hardcastle, M. J., Shimwell, T. W., Tasse, C., Vazza, F., Andernach, H., Birkinshaw, M., Haverkorn, M., Horellou, C., Williams, W. L., Harwood, J. J., Brunetti, G., Anderson, J. M., Mao, S. A., Nikiel-Wroczyński, B., Takahashi, K., Carretti, E., Vernstrom, T., van Weeren, R. J., Orrú, E., Morabito, L. K., & Callingham, J. R. (2019). The intergalactic magnetic field probed by a giant radio galaxy. A&A, 622, A16.

311. Owen, F. N., Eilek, J. A., & Kassim, N. E. (2000). M87 at 90 Centimeters: A Different Picture. ApJ, 543(2), 611–619.

312. Oxford English Dictionary (2000). Oxford English Dictionary.

313. Pacholczyk, A. G. (1970). *Radio astrophysics. Nonthermal processes in galactic and extragalactic sources*.

314. Parfrey, K., Philippov, A., & Cerutti, B. (2019). First-Principles Plasma Simulations of Black-Hole Jet Launching. Phys. Rev. Lett., 122(3), 035101.

315. Parma, P., de Ruiter, H. R., Mack, K. H., van Breugel, W., Dey, A., Fanti, R., & Klein, U. (1996). 1358+305: a giant radio galaxy at z=0.206. A&A, 311, 49–56.

316. Pasini, T., Finoguenov, A., Brüggen, M., Gaspari, M., de Gasperin, F., & Gozaliasl, G. (2021). Radio galaxies in galaxy groups: kinematics, scaling relations, and AGN feedback. MNRAS, 505(2), 2628–2637.

317. Patil, A. H., Yatawatta, S., Koopmans, L. V. E., de Bruyn, A. G., Brentjens, M. A., Zaroubi, S., Asad, K. M. B., Hatef, M., Jelić, V., Mevius, M., Offringa, A. R., Pandey, V. N., Vedantham, H., Abdalla, F. B., Brouw, W. N., Chapman, E., Ciardi, B., Gehlot, B. K., Ghosh, A., Harker, G., Iliev, I. T., Kakiichi, K., Majumdar, S., Mellema, G., Silva, M. B., Schaye, J., Vrbanec, D., & Wijnholds, S. J. (2017). Upper Limits on the 21 cm Epoch of Reionization Power Spectrum from One Night with LOFAR. ApJ, 838, 65.

318. Peacock, J. A. (1999). *Cosmological Physics*. Cambridge University Press.

319. Pedregosa, F., Varoquaux, G., Gramfort, A., Michel, V., Thirion, B., Grisel, O., Blondel, M., Prettenhofer, P., Weiss, R., Dubourg, V., Vanderplas, J., Passos, A., Cournapeau, D., Brucher, M., Perrot, M., & Duchesnay, E. (2011). Scikit-learn: Machine learning in Python. *Journal of Machine Learning Research*, 12, 2825–2830.

320. Petrosian, V. (2001). On the Nonthermal Emission and Acceleration of Electrons in Coma and Other Clusters of Galaxies. ApJ, 557(2), 560–572.

321. Pierpaoli, E., Borgani, S., Scott, D., & White, M. (2003). On determining the cluster abundance normalization. MNRAS,

342(1), 163–175.

322. Pillepich, A., Nelson, D., Hernquist, L., Springel, V., Pakmor, R., Torrey, P., Weinberger, R., Genel, S., Naiman, J. P., Marinacci, F., & Vogelsberger, M. (2018). First results from the IllustrisTNG simulations: the stellar mass content of groups and clusters of galaxies. MNRAS, 475(1), 648–675.

323. Pizzo, R. F., de Bruyn, A. G., Feretti, L., & Govoni, F. (2008). Detection of diffuse radio emission at large distance from the center of the galaxy cluster A 2255. A&A, 481(3), L91–L94.

324. Planck Collaboration, Ade, P. A. R., Aghanim, N., Arnaud, M., Ashdown, M., Aumont, J., Baccigalupi, C., Banday, A. J., Barreiro, R. B., Barrena, R., Bartlett, J. G., Bartolo, N., Battaner, E., Battye, R., Benabed, K., Benoît, A., Benoit-Lévy, A., Bernard, J. P., Bersanelli, M., Bielewicz, P., Bikmaev, I., Böhringer, H., Bonaldi, A., Bonavera, L., Bond, J. R., Borrill, J., Bouchet, F. R., Bucher, M., Burenin, R., Burigana, C., Butler, R. C., Calabrese, E., Cardoso, J. F., Carvalho, P., Catalano, A., Challinor, A., Chamballu, A., Chary, R. R., Chiang, H. C., Chon, G., Christensen, P. R., Clements, D. L., Colombi, S., Colombo, L. P. L., Combet, C., Comis, B., Couchot, F., Coulais, A., Crill, B. P., Curto, A., Cuttaia, F., Dahle, H., Danese, L., Davies, R. D., Davis, R. J., de Bernardis, P., de Rosa, A., de Zotti, G., Delabrouille, J., Désert, F. X., Dickinson, C., Diego, J. M., Dolag, K., Dole, H., Donzelli, S., Doré, O., Douspis, M., Ducout, A., Dupac, X., Efstathiou, G., Eisenhardt, P. R. M., Elsner, F., Enßlin, T. A., Eriksen, H. K., Falgarone, E., Fergusson, J., Feroz, F., Ferragamo, A., Finelli, F., Forni, O., Frailis, M., Fraisse, A. A., Franceschi, E., Frejsel, A., Galeotta, S., Galli, S., Ganga, K., Génova-Santos, R. T., Giard, M., Giraud-Héraud, Y., Gjerløw, E., González-Nuevo, J., Górski, K. M., Grainge, K. J. B., Gratton, S., Gregorio, A., Gruppuso, A., Gudmundsson, J. E., Hansen, F. K., Hanson, D., Harrison, D. L., Hempel, A., Henrot-Versillé, S., Hernández-Monteagudo, C., Herranz, D., Hildebrandt, S. R., Hivon, E., Hobson, M., Holmes, W. A., Hornstrup, A., Hovest, W., Huffenberger, K. M., Hurier, G., Jaffe, A. H., Jaffe, T. R., Jin, T., Jones, W. C., Juvela, M., Keihänen, E., Keskitalo, R., Khamitov, I., Kisner, T. S., Kneissl, R., Knoche, J., Kunz, M., Kurki-Suonio, H., Lagache, G., Lamarre, J. M., Lasenby, A., Lattanzi, M., Lawrence, C. R., Leonardi, R., Lesgourgues, J., Levrier, F., Liguori, M., Lilje, P. B., Linden-Vørnle, M., López-Caniego, M., Lubin, P. M., Macías-Pérez, J. F., Maggio, G., Maino, D., Mak, D. S. Y., Mandolesi, N., Mangilli, A., Martin, P. G., Martínez-González, E., Masi, S., Matarrese, S., Mazzotta, P., McGehee, P., Mei, S., Melchiorri, A., Melin, J. B., Mendes, L., Mennella, A., Migliaccio, M., Mitra, S., Miville-Deschênes, M. A., Moneti, A., Montier, L., Morgante, G., Mortlock, D., Moss, A., Munshi, D., Murphy, J. A., Naselsky, P., Nastasi, A., Nati, F., Natoli, P., Netterfield, C. B., Nørgaard-Nielsen, H. U., Noviello, F., Novikov, D., Novikov, I., Olamaie, M., Oxborrow, C. A., Paci, F., Pagano, L., Pajot, F., Paoletti, D., Pasian, F., Patanchon, G., Pearson, T. J., Perdereau, O., Perotto, L., Perrott, Y. C., Perrotta, F., Pettorino, V., Piacentini, F., Piat, M., Pierpaoli, E., Pietrobon, D., Plaszczynski, S., Pointecouteau, E., Polenta, G., Pratt, G. W., Prézeau, G., Prunet, S., Puget, J. L., Rachen, J. P., Reach, W. T., Rebolo, R., Reinecke, M., Remazeilles, M., Renault, C., Renzi, A., Ristorcelli, I., Rocha, G., Rosset, C., Rossetti, M., Roudier, G., Rozo, E., Rubiño-Martín, J. A., Rumsey, C., Rusholme, B., Rykoff, E. S., Sandri, M., Santos, D., Saunders, R. D. E., Savelainen, M., Savini, G., Schammel, M. P., Scott, D., Seiffert, M. D., Shellard, E. P. S., Shimwell, T. W., Spencer, L. D., Stanford, S. A., Stern, D., Stolyarov, V., Stompor, R., Streblyanska, A., Sudiwala, R., Sunyaev, R., Sutton, D., Suur-Uski, A. S., Sygnet, J. F., Tauber, J. A., Terenzi, L., Toffolatti, L., Tomasi, M., Tramonte, D., Tristram, M., Tucci, M., Tuovinen, J., Umana, G., Valenziano, L., Valiviita, J., Van Tent, B., Vielva, P., Villa, F., Wade, L. A., Wandelt, B. D., Wehus, I. K., White, S. D. M., Wright, E. L., Yvon, D., Zacchei, A., & Zonca, A. (2016). Planck 2015 results. XXVII. The second Planck catalogue of Sunyaev-Zeldovich sources. A&A, 594, A27.

325. Planck Collaboration, Aghanim, N., Akrami, Y., Ashdown, M., Aumont, J., Baccigalupi, C., Ballardini, M., Banday, A. J., Barreiro, R. B., Bartolo, N., Basak, S., Battye, R., Benabed, K., Bernard, J. P., Bersanelli, M., Bielewicz, P., Bock, J. J., Bond, J. R., Borrill, J., Bouchet, F. R., Boulanger, F., Bucher, M., Burigana, C., Butler, R. C., Calabrese, E., Cardoso, J. F., Carron, J., Challinor, A., Chiang, H. C., Chluba, J., Colombo, L. P. L., Combet, C., Contreras, D., Crill, B. P., Cuttaia, F., de Bernardis, P., de Zotti, G., Delabrouille, J., Delouis, J. M., Di Valentino, E., Diego, J. M., Doré, O., Douspis, M., Ducout, A., Dupac, X., Dusini, S., Efstathiou, G., Elsner, F., Enßlin, T. A., Eriksen, H. K., Fantaye, Y., Farhang, M., Fergusson, J., Fernandez-Cobos, R., Finelli, F., Forastieri, F., Frailis, M., Fraisse, A. A., Franceschi, E., Frolov, A., Galeotta, S., Galli, S., Ganga, K., Génova-Santos, R. T., Gerbino, M., Ghosh, T., González-Nuevo, J., Górski, K. M., Gratton, S., Gruppuso, A., Gudmundsson, J. E., Hamann, J., Handley, W., Hansen, F. K., Herranz, D., Hildebrandt, S. R., Hivon, E., Huang, Z., Jaffe, A. H., Jones, W. C., Karakci, A., Keihänen, E., Keskitalo, R., Kiiveri, K., Kim, J., Kisner, T. S., Knox, L., Krachmalnicoff, N., Kunz, M., Kurki-Suonio, H., Lagache, G., Lamarre, J. M., Lasenby, A., Lattanzi, M., Lawrence, C. R., Le Jeune, M., Lemos, P., Lesgourgues, J., Levrier, F., Lewis, A., Liguori, M., Lilje, P. B., Lilley, M., Lindholm, V., López-Caniego, M., Lubin, P. M., Ma, Y. Z., Macías-Pérez, J. F., Maggio, G., Maino, D., Mandolesi, N., Mangilli, A., Marcos-Caballero, A., Maris, M., Martin, P. G., Martinelli, M., Martínez-González, E., Matarrese, S., Mauri, N., McEwen, J. D., Meinhold, P. R., Melchiorri, A., Mennella, A., Migliaccio, M., Millea, M., Mitra, S., Miville-Deschênes, M. A., Molinari, D., Montier, L., Morgante, G., Moss, A., Natoli, P., Nørgaard-Nielsen, H. U., Pagano, L., Paoletti, D., Partridge, B., Patanchon, G., Peiris, H. V., Perrotta, F., Pettorino, V., Piacentini, F., Polastri, L., Polenta, G., Puget, J. L., Rachen, J. P., Reinecke, M., Remazeilles, M., Renzi, A., Rocha, G., Rosset, C., Roudier, G., Rubiño-Martín, J. A., Ruiz-Granados, B., Salvati, L., Sandri, M., Savelainen, M., Scott, D., Shellard, E. P. S., Sirignano, C., Sirri, G., Spencer, L. D., Sunyaev, R., Suur-Uski, A. S., Tauber, J. A., Tavagnacco,

D., Tenti, M., Toffolatti, L., Tomasi, M., Trombetti, T., Valenziano, L., Valiviita, J., Van Tent, B., Vibert, L., Vielva, P., Villa, F., Vittorio, N., Wandelt, B. D., Wehus, I. K., White, M., White, S. D. M., Zacchei, A., & Zonca, A. (2020). Planck 2018 results. VI. Cosmological parameters. A&A, 641, A6.

326. Porqueres, N., Jasche, J., Enßlin, T. A., & Lavaux, G. (2018). Imprints of the large-scale structure on AGN formation and evolution. A&A, 612, A31.

327. Pracy, M. B., Ching, J. H. Y., Sadler, E. M., Croom, S. M., Baldry, I. K., Bland-Hawthorn, J., Brough, S., Brown, M. J. I., Couch, W. J., Davis, T. M., Drinkwater, M. J., Hopkins, A. M., Jarvis, M. J., Jelliffe, B., Jurek, R. J., Loveday, J., Pimbblet, K. A., Prescott, M., Wisnioski, E., & Woods, D. (2016). GAMA/WiggleZ: the 1.4 GHz radio luminosity functions of high- and low-excitation radio galaxies and their redshift evolution to $z = 0.75$. MNRAS, 460(1), 2–17.

328. Proctor, D. D. (2016). A Selection of Giant Radio Sources from NVSS. ApJS, 224(2), 18.

329. Ramatsoku, M., Murgia, M., Vacca, V., Serra, P., Makhathini, S., Govoni, F., Smirnov, O., Andati, L. A. L., de Blok, E., Józsa, G. I. G., Kamphuis, P., Kleiner, D., Maccagni, F. M., Molnár, D. C., Ramaila, A. J. T., Thorat, K., & White, S. V. (2020). Collimated synchrotron threads linking the radio lobes of ESO 137-006. A&A, 636, L1.

330. Rasmussen, C. E. & Williams, C. K. I. (2006). *Gaussian Processes for Machine Learning (Adaptive Computation and Machine Learning)*. The MIT Press.

331. Rees, M. J. (1984). Black Hole Models for Active Galactic Nuclei. ARA&A, 22, 471–506.

332. Rengelink, R. B., Tang, Y., de Bruyn, A. G., Miley, G. K., Bremer, M. N., Roettgering, H. J. A., & Bremer, M. A. R. (1997). The Westerbork Northern Sky Survey (WENSS), I. A 570 square degree Mini-Survey around the North Ecliptic Pole. A&AS, 124, 259–280.

333. Ribeiro, A. L. B., de Carvalho, R. R., Trevisan, M., Capelato, H. V., La Barbera, F., Lopes, P. A. A., & Schilling, A. C. (2013). SPIDER - IX. Classifying galaxy groups according to their velocity distribution. MNRAS, 434(1), 784–795.

334. Rice, J. (2006). *Mathematical Statistics and Data Analysis*. Advanced series. Cengage Learning.

335. Richter, G. A. (1975). Search for Optical Identifications in the 5C3 Radio Survey. II. Statistical Treatment and Results. *Astronomische Nachrichten*, 296(2), 65.

336. Ringermacher, H. I. & Mead, L. R. (2009). A new formula describing the scaffold structure of spiral galaxies. MNRAS, 397(1), 164–171.

337. Rodríguez-Mozos, J. M. & Moya, A. (2019). Erosion of an exoplanetary atmosphere caused by stellar winds. A&A, 630, A52.

338. Ruffini, R., Vereshchagin, G., & Xue, S.-S. (2010). Electron-positron pairs in physics and astrophysics: From heavy nuclei to black holes. Phys. Rep., 487(1-4), 1–140.

339. Rybicki, G. B. & Lightman, A. P. (1986). *Radiative Processes in Astrophysics*. Wiley-VCH.

340. Ryu, C.-M. (2008). Dynamo Mechanism by Transport Flow. In *Statistical Physics, High Energy, Condensed Matter and Mathematical Physics* (pp. 542–542).

341. Ryu, D., Kang, H., Cho, J., & Das, S. (2008). Turbulence and Magnetic Fields in the Large-Scale Structure of the Universe. *Science*, 320(5878), 909.

342. Ryu, D., Kang, H., Hallman, E., & Jones, T. W. (2003). Cosmological shock waves and their role in the large-scale structure of the universe. *The Astrophysical Journal*, 593(2), 599–610.

343. Sabater, J., Best, P. N., Hardcastle, M. J., Shimwell, T. W., Tasse, C., Williams, W. L., Brüggen, M., Cochrane, R. K., Croston, J. H., de Gasperin, F., Duncan, K. J., Gürkan, G., Mechev, A. P., Morabito, L. K., Prandoni, I., Röttgering, H. J. A., Smith, D. J. B., Harwood, J. J., Mingo, B., Mooney, S., & Saxena, A. (2019). The LoTSS view of radio AGN in the local Universe. The most massive galaxies are always switched on. A&A, 622, A17.

344. Safouris, V., Subrahmanyan, R., Bicknell, G. V., & Saripalli, L. (2009). MRCB0319-454: probing the large-scale structure with a giant radio galaxy. MNRAS, 393(1), 2–20.

345. Saikia, D. J., Konar, C., & Kulkarni, V. K. (2006). J0041+3224: a new double-double radio galaxy. MNRAS, 366(4), 1391–1398.

346. Salim, S., Boquien, M., & Lee, J. C. (2018). Dust Attenuation Curves in the Local Universe: Demographics and New Laws for Star-forming Galaxies and High-redshift Analogs. ApJ, 859(1), 11.

347. Salpeter, E. E. (1955). The Luminosity Function and Stellar Evolution. ApJ, 121, 161.

348. Salter, C. J. (1983). Loop-I the North Polar Spur - a Major Feature of the Local Interstellar Environment. *Bulletin of the Astronomical Society of India*, 11, 1.

349. Saripalli, L., Subrahmanyan, R., & Udaya Shankar, N. (2002). A Case for Renewed Activity in the Giant Radio Galaxy J0116-473. ApJ, 565(1), 256–264.

350. Saulder, C., van Kampen, E., Chilingarian, I. V., Mieske, S., & Zeilinger, W. W. (2016). The matter distribution in the local Universe as derived from galaxy groups in SDSS DR12 and 2MRS. A&A, 596, A14.

351. Saxena, A., Jagannathan, P., Röttgering, H. J. A., Best, P. N., Intema, H. T., Zhang, M., Duncan, K. J., Carilli, C. L., & Miley, G. K. (2018). A search for faint high-redshift radio galaxy candidates at 150 MHz. MNRAS, 475(4), 5041–5058.

352. Schaye, J., Crain, R. A., Bower, R. G., Furlong, M., Schaller, M., Theuns, T., Dalla Vecchia, C., Frenk, C. S., McCarthy, I. G., Helly, J. C., Jenkins, A., Rosas-Guevara, Y. M., White, S. D. M., Baes, M., Booth, C. M., Camps, P., Navarro, J. F., Qu, Y., Rahmati, A., Sawala, T., Thomas, P. A., & Trayford, J. (2015). The EAGLE project: simulating the evolution and assembly of galaxies and their environments. MNRAS, 446(1), 521–554.

353. Schaye, J., Dalla Vecchia, C., Booth, C. M., Wiersma, R. P. C., Theuns, T., Haas, M. R., Bertone, S., Duffy, A. R., McCarthy, I. G., & van de Voort, F. (2010). The physics driving the cosmic star formation history. MNRAS, 402(3), 1536–1560.

354. Scheuer, P. A. G. (1974). Models of extragalactic radio sources with a continuous energy supply from a central object. MNRAS, 166, 513–528.

355. Schlafly, E. F., Meisner, A. M., & Green, G. M. (2019). The unWISE Catalog: Two Billion Infrared Sources from Five Years of WISE Imaging. ApJS, 240(2), 30.

356. Schoenmakers, A. P., Mack, K. H., de Bruyn, A. G., Röttgering, H. J. A., Klein, U., & van der Laan, H. (2000). A new sample of giant radio galaxies from the WENSS survey. II. A multi-frequency radio study of a complete sample: Properties of the radio lobes and their environment. A&AS, 146, 293–322.

357. Schoenmakers, A. P., Mack, K. H., Lara, L., Röttgering, H. J. A., de Bruyn, A. G., van der Laan, H., & Giovannini, G. (1998). WNB 0313+683: analysis of a newly discovered giant radio galaxy. A&A, 336, 455–478.

358. Scott, D. & Tout, C. A. (1989). Nearest neighbour analysis of random distributions on a sphere. MNRAS, 241, 109–117.

359. Sebastian, B., Ishwara-Chandra, C. H., Joshi, R., & Wadadekar, Y. (2018). Discovery of a new, 2.2-Mpc giant radio galaxy at a redshift of 0.57. MNRAS, 473(4), 4926–4931.

360. Shabala, S. S. & Godfrey, L. E. H. (2013). Size Dependence of the Radio-luminosity-Mechanical-power Correlation in Radio Galaxies. ApJ, 769(2), 129.

361. Sharp, R., Saunders, W., Smith, G., Churilov, V., Correll, D., Dawson, J., Farrel, T., Frost, G., Haynes, R., Heald, R., Lankshear, A., Mayfield, D., Waller, L., & Whittard, D. (2006). Performance of AAOmega: the AAT multi-purpose fiber-fed spectrograph. In I. S. McLean & M. Iye (Eds.), *Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series*, volume 6269 of *Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series* (pp. 62690G).

362. Shim, H., Im, M., Lee, H. M., Lee, M. G., Kim, S. J., Hwang, H. S., Hwang, N., Ko, J., Lee, J. C., Lim, S., Matsuhara, H., Seo, H., Wada, T., & Goto, T. (2011). Merging Galaxy Cluster A2255 in Mid-infrared. ApJ, 727(1), 14.

363. Shimwell, T. W., Hardcastle, M. J., Tasse, C., Best, P. N., Röttgering, H. J. A., Williams, W. L., Botteon, A., Drabent, A., Mechev, A., Shulevski, A., van Weeren, R. J., Bester, L., Brüggen, M., Brunetti, G., Callingham, J. R., Chyży, K. T., Conway, J. E., Dijkema, T. J., Duncan, K., de Gasperin, F., Hale, C. L., Haverkorn, M., Hugo, B., Jackson, N., Mevius, M., Miley, G. K., Morabito, L. K., Morganti, R., Offringa, A., Oonk, J. B. R., Rafferty, D., Sabater, J., Smith, D. J. B., Schwarz, D. J., Smirnov, O., O'Sullivan, S. P., Vedantham, H., White, G. J., Albert, J. G., Alegre, L., Asabere, B., Bacon, D. J., Bonafede, A., Bonnassieux, E., Brienza, M., Bilicki, M., Bonato, M., Calistro Rivera, G., Cassano, R., Cochrane, R., Croston, J. H., Cuciti, V., Dallacasa, D., Danezi, A., Dettmar, R. J., Di Gennaro, G., Edler, H. W., Enßlin, T. A., Emig, K. L., Franzen, T. M. O., García-Vergara, C., Grange, Y. G., Gürkan, G., Hajduk, M., Heald, G., Heesen, V., Hoang, D. N., Hoeft, M., Horellou, C., Iacobelli, M., Jamrozy, M., Jelić, V., Kondapally, R., Kukreti, P., Kunert-Bajraszewska, M., Magliocchetti, M., Mahatma, V., Małek, K., Mandal, S., Massaro, F., Meyer-Zhao, Z., Mingo, B., Mostert, R. I. J., Nair, D. G., Nakoneczny, S. J., Nikiel-Wroczyński, B., Orrú, E., Pajdosz-Śmierciak, U., Pasini, T., Prandoni, I., van Piggelen, H. E., Rajpurohit, K., Retana-Montenegro, E., Riseley, C. J., Rowlinson, A., Saxena, A., Schrijvers, C., Sweijen, F., Siewert, T. M., Timmerman, R., Vaccari, M., Vink, J., West, J. L., Wołowska, A., Zhang, X., & Zheng, J. (2022). The LOFAR Two-metre Sky Survey. V. Second data release. A&A, 659, A1.

364. Shimwell, T. W., Röttgering, H. J. A., Best, P. N., Williams, W. L., Dijkema, T. J., de Gasperin, F., Hardcastle, M. J., Heald, G. H., Hoang, D. N., Horneffer, A., Intema, H., Mahony, E. K., Mandal, S., Mechev, A. P., Morabito, L., Oonk, J. B. R., Rafferty, D., Retana-Montenegro, E., Sabater, J., Tasse, C., van Weeren, R. J., Brüggen, M., Brunetti, G., Chyży, K. T., Conway, J. E., Haverkorn, M., Jackson, N., Jarvis, M. J., McKean, J. P., Miley, G. K., Morganti, R., White, G. J., Wise, M. W., van Bemmel, I. M., Beck, R., Brienza, M., Bonafede, A., Calistro Rivera, G., Cassano, R., Clarke, A. O., Cseh, D., Deller, A., Drabent, A., van Driel, W., Engels, D., Falcke, H., Ferrari, C., Fröhlich, S., Garrett, M. A., Harwood, J. J., Heesen, V., Hoeft, M., Horellou, C., Israel, F. P., Kapińska, A. D., Kunert-Bajraszewska, M., McKay, D. J., Mohan, N. R., Orrú, E., Pizzo, R. F., Prandoni, I., Schwarz, D. J., Shulevski, A., Sipior, M., Smith, D. J. B., Sridhar, S. S., Steinmetz, M., Stroe, A., Varenius, E., van der Werf, P. P., Zensus, J. A., & Zwart, J. T. L. (2017). The LOFAR Two-metre Sky Survey. I. Survey description and preliminary data release. A&A, 598, A104.

365. Shimwell, T. W., Tasse, C., Hardcastle, M. J., Mechev, A. P., Williams, W. L., Best, P. N., Röttgering, H. J. A., Callingham, J. R., Dijkema, T. J., de Gasperin, F., Hoang, D. N., Hugo, B., Mirmont, M., Oonk, J. B. R., Prandoni, I., Rafferty, D., Sabater, J., Smirnov, O., van Weeren, R. J., White, G. J., Atemkeng, M., Bester, L., Bonnassieux, E., Brüggen, M., Brunetti, G., Chyży, K. T., Cochrane, R., Conway, J. E., Croston, J. H., Danezi, A., Duncan, K., Haverkorn, M., Heald, G. H., Iacobelli, M., Intema, H. T., Jackson, N., Jamrozy, M., Jarvis, M. J., Lakhoo, R., Mevius, M., Miley, G. K., Morabito, L., Morganti, R., Nisbet, D., Orrú, E., Perkins, S., Pizzo, R. F., Schrijvers, C., Smith, D. J. B., Vermeulen, R., Wise, M. W., Alegre, L., Bacon, D. J., van Bemmel, I. M., Beswick, R. J., Bonafede, A., Botteon, A., Bourke, S., Brienza, M., Calistro Rivera, G., Cassano, R., Clarke, A. O., Conselice, C. J., Dettmar, R. J., Drabent, A., Dumba, C., Emig, K. L., Enßlin, T. A., Ferrari, C., Garrett, M. A., Génova-Santos, R. T., Goyal, A., Gürkan, G., Hale, C., Harwood, J. J., Heesen, V., Hoeft, M., Horellou, C., Jackson, C., Kokotanekov, G., Kondapally, R., Kunert-Bajraszewska, M., Mahatma, V., Mahony, E. K., Mandal, S., McKean, J. P., Merloni, A., Mingo, B., Miskolczi, A., Mooney, S., Nikiel-Wroczyński, B., O'Sullivan, S. P., Quinn, J., Reich, W., Roskowiński, C., Rowlinson, A., Savini, F., Saxena, A., Schwarz, D. J., Shulevski, A., Sridhar, S. S., Stacey, H. R., Urquhart, S., van der Wiel, M. H. D., Varenius, E., Webster, B., & Wilber, A. (2019). The LOFAR Two-metre Sky Survey. II. First data release. A&A, 622, A1.

366. Simonte, M., Andernach, H., Brüggen, M., Schwarz, D. J., Prandoni, I., & Willis, A. G. (2022). Giant radio galaxies in the LOw-Frequency ARray Two-metre Sky Survey Boötes deep field. MNRAS, 515(2), 2032–2052.

367. Sims, P. H., Lentati, L., Alexander, P., & Carilli, C. L. (2016). Contamination of the Epoch of Reionization power spectrum in the presence of foregrounds. MNRAS, 462(3), 3069–3093.

368. Singal, J., Petrosian, V., Haider, J., & Malik, S. (2019). Luminosity-Luminosity Correlations in Flux-limited Multiwavelength Data. ApJ, 877(1), 63.

369. Siponen, M. I., Legrand, P., Widdrat, M., Jones, S. R., Zhang, W.-J., Chang, M. C. Y., Faivre, D., Arnoux, P., & Pignol, D. (2013). Structural insight into magnetochrome-mediated magnetite biomineralization. *Nature*, 502(7473), 681–684.

370. Smith, D. J. B., Best, P. N., Duncan, K. J., Hatch, N. A., Jarvis, M. J., Röttgering, H. J. A., Simpson, C. J., Stott, J. P., Cochrane, R. K., Coppin, K. E., Dannerbauer, H., Davis, T. A., Geach, J. E., Hale, C. L., Hardcastle, M. J., Hatfield, P. W., Houghton, R. C. W., Maddox, N., McGee, S. L., Morabito, L., Nisbet, D., Pandey-Pommier, M., Prandoni, I., Saxena, A., Shimwell, T. W., Tarr, M., van Bemmel, I., Verma, A., White, G. J., & Williams, W. L. (2016). The WEAVE-LOFAR Survey. In C. Reylé, J. Richard, L. Cambrésy, M. Deleuil, E. Pécontal, L. Tresse, & I. Vauglin (Eds.), *SF2A-2016: Proceedings of the Annual meeting of the French Society of Astronomy and Astrophysics* (pp. 271–280).

371. Solovyov, D. I. & Verkhodanov, O. V. (2011). A search for faint giant radio galaxies in the NVSS survey. *Astrophysical Bulletin*, 66(4), 416–423.

372. Solovyov, D. I. & Verkhodanov, O. V. (2014). Radio and optical identification of giant radio galaxies from NVSS radio survey. *Astrophysical Bulletin*, 69(2), 141–159.

373. Soltan, A. (1982). Masses of quasars. MNRAS, 200, 115–122.

374. Spoelstra, T. A. T. (1983). The influence of ionospheric refraction on radio astronomy interferometry. A&A, 120, 313–321.

375. Springel, V., Pakmor, R., Pillepich, A., Weinberger, R., Nelson, D., Hernquist, L., Vogelsberger, M., Genel, S., Torrey, P., Marinacci, F., & Naiman, J. (2018). First results from the IllustrisTNG simulations: matter and galaxy clustering. MNRAS, 475(1), 676–698.

376. Springel, V., White, S. D. M., Jenkins, A., Frenk, C. S., Yoshida, N., Gao, L., Navarro, J., Thacker, R., Croton, D., Helly, J., Peacock, J. A., Cole, S., Thomas, P., Couchman, H., Evrard, A., Colberg, J., & Pearce, F. (2005). Simulations of the formation, evolution and clustering of galaxies and quasars. Nature, 435(7042), 629–636.

377. Strauss, M. A., Weinberg, D. H., Lupton, R. H., Narayanan, V. K., Annis, J., Bernardi, M., Blanton, M., Burles, S., Connolly, A. J., Dalcanton, J., Doi, M., Eisenstein, D., Frieman, J. A., Fukugita, M., Gunn, J. E., Ivezić, Ž., Kent, S., Kim, R. S. J., Knapp, G. R., Kron, R. G., Munn, J. A., Newberg, H. J., Nichol, R. C., Okamura, S., Quinn, T. R., Richmond, M. W., Schlegel, D. J., Shimasaku, K., SubbaRao, M., Szalay, A. S., Vanden Berk, D., Vogeley, M. S., Yanny, B., Yasuda, N., York, D. G., & Zehavi, I. (2002). Spectroscopic Target Selection in the Sloan Digital Sky Survey: The Main Galaxy Sample. AJ, 124(3), 1810–1824.

378. Stuardi, C., O'Sullivan, S. P., Bonafede, A., Brüggen, M., Dabhade, P., Horellou, C., Morganti, R., Carretti, E., Heald, G., Iacobelli, M., & Vacca, V. (2020). The LOFAR view of intergalactic magnetic fields with giant radio galaxies. A&A, 638, A48.

379. Subrahmanyan, R., Hunstead, R. W., Cox, N. L. J., & McIntyre, V. (2006). SGRS J0515-8100: A Fat-Double Giant Radio Galaxy. ApJ, 636(1), 172–180.

380. Subrahmanyan, R., Saripalli, L., & Hunstead, R. W. (1996). Morphologies in megaparsec-size powerful radio galaxies. MNRAS, 279(1), 257–274.

381. Subrahmanyan, R., Saripalli, L., Safouris, V., & Hunstead, R. W. (2008). On the Relationship between a Giant Radio

Galaxy MSH 05-22 and the Ambient Large-Scale Galaxy Structure. ApJ, 677(1), 63–78.

382. Subramanian, K. (2016). The origin, evolution and signatures of primordial magnetic fields. *Reports on Progress in Physics*, 79(7), 076901.

383. Sun, M., Voit, G. M., Donahue, M., Jones, C., Forman, W., & Vikhlinin, A. (2009). Chandra Studies of the X-Ray Gas Properties of Galaxy Groups. ApJ, 693(2), 1142–1172.

384. Sutherland, W. & Saunders, W. (1992). On the likelihood ratio for source identification. MNRAS, 259, 413–420.

385. Tamhane, P., Wadadekar, Y., Basu, A., Singh, V., Ishwara-Chandra, C. H., Beelen, A., & Sirothia, S. (2015). J021659-044920: a relic giant radio galaxy at $z \sim 1.3$. MNRAS, 453(3), 2438–2446.

386. Tang, H., Scaife, A. M. M., Wong, O. I., Kapińska, A. D., Rudnick, L., Shabala, S. S., Seymour, N., & Norris, R. P. (2020). Radio Galaxy Zoo: new giant radio galaxies in the RGZ DR1 catalogue. MNRAS, 499(1), 68–76.

387. Tanimura, H., Aghanim, N., Douspis, M., Beelen, A., & Bonjean, V. (2019a). Detection of intercluster gas in superclusters using the thermal Sunyaev-Zel'dovich effect. A&A, 625, A67.

388. Tanimura, H., Aghanim, N., Douspis, M., & Malavasi, N. (2022). X-ray emission from cosmic web filaments in SRG/eROSITA data. *arXiv e-prints*, (pp. arXiv:2206.00084).

389. Tanimura, H., Aghanim, N., Kolodzig, A., Douspis, M., & Malavasi, N. (2020). First detection of stacked X-ray emission from cosmic web filaments. A&A, 643, L2.

390. Tanimura, H., Hinshaw, G., McCarthy, I. G., Van Waerbeke, L., Aghanim, N., Ma, Y.-Z., Mead, A., Hojjati, A., & Tröster, T. (2019b). A search for warm/hot gas filaments between pairs of SDSS Luminous Red Galaxies. MNRAS, 483(1), 223–234.

391. Tasse, C., Hugo, B., Mirmont, M., Smirnov, O., Atemkeng, M., Bester, L., Hardcastle, M. J., Lakhoo, R., Perkins, S., & Shimwell, T. (2018). Faceting for direction-dependent spectral deconvolution. A&A, 611, A87.

392. Tasse, C., Shimwell, T., Hardcastle, M. J., O'Sullivan, S. P., van Weeren, R., Best, P. N., Bester, L., Hugo, B., Smirnov, O., Sabater, J., Calistro-Rivera, G., de Gasperin, F., Morabito, L. K., Röttgering, H., Williams, W. L., Bonato, M., Bondi, M., Botteon, A., Brüggen, M., Brunetti, G., Chyży, K. T., Garrett, M. A., Gürkan, G., Jarvis, M. J., Kondapally, R., Mandal, S., Prandoni, I., Repetti, A., Retana-Montenegro, E., Schwarz, D. J., Shulevski, A., & Wiaux, Y. (2021). The LOFAR Two-meter Sky Survey: Deep Fields Data Release 1. I. Direction-dependent calibration and imaging. A&A, 648, A1.

393. Tempel, E., Tuvikene, T., Kipper, R., & Libeskind, N. I. (2017). Merging groups and clusters of galaxies from the SDSS data. The catalogue of groups and potentially merging systems. A&A, 602, A100.

394. The Astropy Collaboration, Price-Whelan, A. M. Price-Whelan, A. M., Sipőcz, B. M., Günther, H. M., Lim, P. L., Crawford, S. M., Conseil, S., Shupe, D. L., Craig, M. W., & Dencheva, N. (2018). The Astropy Project: Building an Open-science Project and Status of the v2.0 Core Package. AJ, 156, 123.

395. Timmerman, R., van Weeren, R. J., Callingham, J. R., Cotton, W. D., Perley, R., Morabito, L. K., Gizani, N. A. B., Bridle, A. H., O'Dea, C. P., Baum, S. A., Tremblay, G. R., Kharb, P., Kassim, N. E., Röttgering, H. J. A., Botteon, A., Sweijen, F., Tasse, C., Brüggen, M., Moldon, J., Shimwell, T., & Brunetti, G. (2022). Origin of the ring structures in Hercules A. Sub-arcsecond 144 MHz to 7 GHz observations. A&A, 658, A5.

396. Tjoa, J. N. K. Y., Mueller, M., & van der Tak, F. F. S. (2020). The subsurface habitability of small, icy exomoons. A&A, 636, A50.

397. Treumann, R. A. (2006). The electron-cyclotron maser for astrophysical application. A&A Rev., 13(4), 229–315.

398. Tsagas, C. G. (2007). Magnetic fields in conformally flat spacetimes. In *Journal of Physics Conference Series*, volume 68 of *Journal of Physics Conference Series* (pp. 012051).

399. Tsaprazi, E., Jasche, J., Lavaux, G., & Leclercq, F. (2023). Higher-order statistics of the large-scale structure from photometric redshifts. *arXiv e-prints*, (pp. arXiv:2301.03581).

400. Tully, R. B. (2015). Galaxy Groups: A 2MASS Catalog. AJ, 149(5), 171.

401. Tuominen, T., Nevalainen, J., Tempel, E., Kuutma, T., Wijers, N., Schaye, J., Heinämäki, P., Bonamente, M., & Ganeshaiah Veena, P. (2021). An EAGLE view of the missing baryons. A&A, 646, A156.

402. Turner, M. S. & Widrow, L. M. (1988). Inflation-produced, large-scale magnetic fields. *Phys. Rev. D*, 37, 2743–2754.

403. Turner, R. J. & Shabala, S. S. (2015). Energetics and Lifetimes of Local Radio Active Galactic Nuclei. ApJ, 806(1), 59.

404. van Cittert, P. H. (1934). Die Wahrscheinliche Schwingungsverteilung in Einer von Einer Lichtquelle Direkt Oder Mittels Einer Linse Beleuchteten Ebene. *Physica*, 1(1), 201–210.

405. van der Tol, S. (2009). *Bayesian estimation for ionospheric calibration in radio astronomy*. PhD thesis, TU Delft.

406. van der Tol, S., Veenboer, B., & Offringa, A. R. (2018). Image Domain Gridding: a fast method for convolutional resampling

of visibilities. A&A, 616, A27.

407. van Haarlem, M. P., Wise, M. W., Gunst, A. W., Heald, G., McKean, J. P., Hessels, J. W. T., de Bruyn, A. G., Nijboer, R., Swinbank, J., Fallows, R., Brentjens, M., Nelles, A., Beck, R., Falcke, H., Fender, R., Hörandel, J., Koopmans, L. V. E., Mann, G., Miley, G., Röttgering, H., Stappers, B. W., Wijers, R. A. M. J., Zaroubi, S., van den Akker, M., Alexov, A., Anderson, J., Anderson, K., van Ardenne, A., Arts, M., Asgekar, A., Avruch, I. M., Batejat, F., Bähren, L., Bell, M. E., Bell, M. R., van Bemmel, I., Bennema, P., Bentum, M. J., Bernardi, G., Best, P., Bîrzan, L., Bonafede, A., Boonstra, A. J., Braun, R., Bregman, J., Breitling, F., van de Brink, R. H., Broderick, J., Broekema, P. C., Brouw, W. N., Brüggen, M., Butcher, H. R., van Cappellen, W., Ciardi, B., Coenen, T., Conway, J., Coolen, A., Corstanje, A., Damstra, S., Davies, O., Deller, A. T., Dettmar, R. J., van Diepen, G., Dijkstra, K., Donker, P., Doorduin, A., Dromer, J., Drost, M., van Duin, A., Eislöffel, J., van Enst, J., Ferrari, C., Frieswijk, W., Gankema, H., Garrett, M. A., de Gasperin, F., Gerbers, M., de Geus, E., Grießmeier, J. M., Grit, T., Gruppen, P., Hamaker, J. P., Hassall, T., Hoeft, M., Holties, H. A., Horneffer, A., van der Horst, A., van Houwelingen, A., Huijgen, A., Iacobelli, M., Intema, H., Jackson, N., Jelic, V., de Jong, A., Juette, E., Kant, D., Karastergiou, A., Koers, A., Kollen, H., Kondratiev, V. I., Kooistra, E., Koopman, Y., Koster, A., Kuniyoshi, M., Kramer, M., Kuper, G., Lambropoulos, P., Law, C., van Leeuwen, J., Lemaitre, J., Loose, M., Maat, P., Macario, G., Markoff, S., Masters, J., McFadden, R. A., McKay-Bukowski, D., Meijering, H., Meulman, H., Mevius, M., Middelberg, E., Millenaar, R., Miller-Jones, J. C. A., Mohan, R. N., Mol, J. D., Morawietz, J., Morganti, R., Mulcahy, D. D., Mulder, E., Munk, H., Nieuwenhuis, L., van Nieuwpoort, R., Noordam, J. E., Norden, M., Noutsos, A., Offringa, A. R., Olofsson, H., Omar, A., Orrú, E., Overeem, R., Paas, H., Pandey-Pommier, M., Pandey, V. N., Pizzo, R., Polatidis, A., Rafferty, D., Rawlings, S., Reich, W., de Reijer, J. P., Reitsma, J., Renting, G. A., Riemers, P., Rol, E., Romein, J. W., Roosjen, J., Ruiter, M., Scaife, A., van der Schaaf, K., Scheers, B., Schellart, P., Schoenmakers, A., Schoonderbeek, G., Serylak, M., Shulevski, A., Sluman, J., Smirnov, O., Sobey, C., Spreeuw, H., Steinmetz, M., Sterks, C. G. M., Stiepel, H. J., Stuurwold, K., Tagger, M., Tang, Y., Tasse, C., Thomas, I., Thoudam, S., Toribio, M. C., van der Tol, B., Usov, O., van Veelen, M., van der Veen, A. J., ter Veen, S., Verbiest, J. P. W., Vermeulen, R., Vermaas, N., Vocks, C., Vogt, C., de Vos, M., van der Wal, E., van Weeren, R., Weggemans, H., Weltevrede, P., White, S., Wijnholds, S. J., Wilhelmsson, T., Wucknitz, O., Yatawatta, S., Zarka, P., Zensus, A., & van Zwieten, J. (2013). LOFAR: The LOw-Frequency ARray. A&A, 556, A2.

408. van Leeuwen, H. J. (1919). *Vraagstukken uit de electronentheorie van het magnetisme*. Leiden: Eduard IJdo.

409. van Weeren, R. J., de Gasperin, F., Akamatsu, H., Brüggen, M., Feretti, L., Kang, H., Stroe, A., & Zandanel, F. (2019). Diffuse Radio Emission from Galaxy Clusters. Space Sci. Rev., 215(1), 16.

410. van Weeren, R. J., Röttgering, H. J. A., Intema, H. T., Rudnick, L., Brüggen, M., Hoeft, M., & Oonk, J. B. R. (2012). The "toothbrush-relic": evidence for a coherent linear 2-Mpc scale shock wave in a massive merging galaxy cluster? A&A, 546, A124.

411. van Weeren, R. J., Shimwell, T. W., Botteon, A., Brunetti, G., Brüggen, M., Boxelaar, J. M., Cassano, R., Di Gennaro, G., Andrade-Santos, F., Bonnassieux, E., Bonafede, A., Cuciti, V., Dallacasa, D., de Gasperin, F., Gastaldello, F., Hardcastle, M. J., Hoeft, M., Kraft, R. P., Mandal, S., Rossetti, M., Röttgering, H. J. A., Tasse, C., & Wilber, A. G. (2021). LOFAR observations of galaxy clusters in HETDEX. Extraction and self-calibration of individual LOFAR targets. A&A, 651, A115.

412. van Weeren, R. J., Williams, W. L., Hardcastle, M. J., Shimwell, T. W., Rafferty, D. A., Sabater, J., Heald, G., Sridhar, S. S., Dijkema, T. J., Brunetti, G., Brüggen, M., Andrade-Santos, F., Ogrean, G. A., Röttgering, H. J. A., Dawson, W. A., Forman, W. R., de Gasperin, F., Jones, C., Miley, G. K., Rudnick, L., Sarazin, C. L., Bonafede, A., Best, P. N., Bîrzan, L., Cassano, R., Chyży, K. T., Croston, J. H., Ensslin, T., Ferrari, C., Hoeft, M., Horellou, C., Jarvis, M. J., Kraft, R. P., Mevius, M., Intema, H. T., Murray, S. S., Orrú, E., Pizzo, R., Simionescu, A., Stroe, A., van der Tol, S., & White, G. J. (2016). LOFAR Facet Calibration. ApJS, 223, 2.

413. Vazza, F., Brüggen, M., Gheller, C., Hackstein, S., Wittor, D., & Hinz, P. M. (2017). Simulations of extragalactic magnetic fields and of their observables. *Classical and Quantum Gravity*, 34(23), 234001.

414. Vazza, F., Brunetti, G., & Gheller, C. (2009). Shock waves in Eulerian cosmological simulations: main properties and acceleration of cosmic rays. MNRAS, 395(3), 1333–1354.

415. Vazza, F., Dolag, K., Ryu, D., Brunetti, G., Gheller, C., Kang, H., & Pfrommer, C. (2011). A comparison of cosmological codes: properties of thermal gas and shock waves in large-scale structures. MNRAS, 418(2), 960–985.

416. Vazza, F., Ettori, S., Roncarelli, M., Angelinelli, M., Brüggen, M., & Gheller, C. (2019). Detecting shocked intergalactic gas with X-ray and radio observations. A&A, 627, A5.

417. Vazza, F. & Feletti, A. (2020). The quantitative comparison between the neuronal network and the cosmic web. *Frontiers in Physics*, 8, 491.

418. Vazza, F., Ferrari, C., Brüggen, M., Bonafede, A., Gheller, C., & Wang, P. (2015). Forecasts for the detection of the magnetised cosmic web from cosmological simulations. A&A, 580, A119.

419. Vazza, F., Locatelli, N., Rajpurohit, K., Banfi, S., Domínguez-Fernández, P., Wittor, D., Angelinelli, M., Inchingolo, G.,

Brienza, M., Hackstein, S., Dallacasa, D., Gheller, C., Brüggen, M., Brunetti, G., Bonafede, A., Ettori, S., Stuardi, C., Paoletti, D., & Finelli, F. (2021a). Magnetogenesis and the Cosmic Web: A Joint Challenge for Radio Observations and Numerical Simulations. *Galaxies*, 9(4), 109.

420. Vazza, F., Paoletti, D., Banfi, S., Finelli, F., Gheller, C., O'Sullivan, S. P., & Brüggen, M. (2021b). Simulations and observational tests of primordial magnetic fields from Cosmic Microwave Background constraints. MNRAS, 500(4), 5350–5368.

421. Vedantham, H. K. & Koopmans, L. V. E. (2015). Scintillation noise in widefield radio interferometry. MNRAS, 453, 925–938.

422. Vernstrom, T., Gaensler, B. M., Brown, S., Lenc, E., & Norris, R. P. (2017). Low-frequency radio constraints on the synchrotron cosmic web. MNRAS, 467(4), 4914–4936.

423. Vernstrom, T., Gaensler, B. M., Rudnick, L., & Andernach, H. (2019). Differences in Faraday Rotation between Adjacent Extragalactic Radio Sources as a Probe of Cosmic Magnetic Fields. ApJ, 878(2), 92.

424. Vernstrom, T., Heald, G., Vazza, F., Galvin, T. J., West, J. L., Locatelli, N., Fornengo, N., & Pinetti, E. (2021). Discovery of magnetic fields along stacked cosmic filaments as revealed by radio and X-ray emission. MNRAS, 505(3), 4178–4196.

425. Vernstrom, T., West, J., Vazza, F., Wittor, D., Riseley, C. J., & Heald, G. (2023). Polarized accretion shocks from the cosmic web. *Science Advances*, 9(7), eade7233.

426. Voges, W., Aschenbach, B., Boller, T., Bräuninger, H., Briel, U., Burkert, W., Dennerl, K., Englhauser, J., Gruber, R., Haberl, F., Hartner, G., Hasinger, G., Kürster, M., Pfeffermann, E., Pietsch, W., Predehl, P., Rosso, C., Schmitt, J. H. M. M., Trümper, J., & Zimmermann, H. U. (1999). The ROSAT all-sky survey bright source catalogue. A&A, 349, 389–405.

427. Wandelt, B. D., Larson, D. L., & Lakshminarayanan, A. (2004). Global, exact cosmic microwave background data analysis using Gibbs sampling. Phys. Rev. D, 70(8), 083511.

428. Wang, H., Mo, H. J., Yang, X., Jing, Y. P., & Lin, W. P. (2014). ELUCID—Exploring the Local Universe with the Reconstructed Initial Density Field. I. Hamiltonian Markov Chain Monte Carlo Method with Particle Mesh Dynamics. ApJ, 794(1), 94.

429. Wang, H., Mo, H. J., Yang, X., & van den Bosch, F. C. (2013). Reconstructing the Initial Density Field of the Local Universe: Methods and Tests with Mock Catalogs. ApJ, 772(1), 63.

430. Wang, S., Liu, J., Qiu, Y., Bai, Y., Yang, H., Guo, J., & Zhang, P. (2016). CHANDRA ACIS Survey of X-Ray Point Sources: The Source Catalog. ApJS, 224(2), 40.

431. Wang, W., Dai, J., Chen, Z., Huang, Z., Li, Z., Zhu, X., Hu, X., Lu, T., Lu, L., Li, H., et al. (2022). Internimage: Exploring large-scale vision foundation models with deformable convolutions. *arXiv preprint arXiv:2211.05778*.

432. Ward, S. R., Harrison, C. M., Costa, T., & Mainieri, V. (2022). Cosmological simulations predict that AGN preferentially live in gas-rich, star-forming galaxies despite effective feedback. MNRAS, 514(2), 2936–2957.

433. Warner, T. (2012). *Synthesis, Properties and Mineralogy of Important Inorganic Materials*. Wiley.

434. Wasilewski, P. & Kletetschka, G. (1999). Lodestone: Nature's only permanent magnet — What it is and how it gets charged. *Geophysical Research Letters*, 26(15), 2275–2278.

435. Weiss, Y. & Freeman, W. T. (2001). Correctness of belief propagation in gaussian graphical models of arbitrary topology. *Neural Computation*, 13(10), 2173–2200.

436. Wen, Z. L. & Han, J. L. (2015). Calibration of the Optical Mass Proxy for Clusters of Galaxies and an Update of the WHL12 Cluster Catalog. ApJ, 807(2), 178.

437. Wen, Z. L., Han, J. L., & Liu, F. S. (2012). A Catalog of 132,684 Clusters of Galaxies Identified from Sloan Digital Sky Survey III. ApJS, 199(2), 34.

438. Werner, N., Simionescu, A., Million, E. T., Allen, S. W., Nulsen, P. E. J., von der Linden, A., Hansen, S. M., Böhringer, H., Churazov, E., Fabian, A. C., Forman, W. R., Jones, C., Sanders, J. S., & Taylor, G. B. (2010). Feedback under the microscope-II. Heating, gas uplift and mixing in the nearest cluster core. MNRAS, 407(4), 2063–2074.

439. Wilcox, C. H. (1962). Wave propagation in a random medium (lev a. chernov). *SIAM Review*, 4(1), 55–55.

440. Williams, W. L., Calistro Rivera, G., Best, P. N., Hardcastle, M. J., Röttgering, H. J. A., Duncan, K. J., de Gasperin, F., Jarvis, M. J., Miley, G. K., Mahony, E. K., Morabito, L. K., Nisbet, D. M., Prandoni, I., Smith, D. J. B., Tasse, C., & White, G. J. (2018). LOFAR-Boötes: properties of high- and low-excitation radio galaxies at $0.5 < z < 2.0$. MNRAS, 475(3), 3429–3452.

441. Williams, W. L., Hardcastle, M. J., Best, P. N., Sabater, J., Croston, J. H., Duncan, K. J., Shimwell, T. W., Röttgering, H. J. A., Nisbet, D., Gürkan, G., Alegre, L., Cochrane, R. K., Goyal, A., Hale, C. L., Jackson, N., Jamrozy, M., Kondapally, R., Kunert-Bajraszewska, M., Mahatma, V. H., Mingo, B., Morabito, L. K., Prandoni, I., Roskowinski, C., Shulevski, A., Smith, D. J. B., Tasse, C., Urquhart, S., Webster, B., White, G. J., Beswick, R. J., Callingham, J. R., Chyży, K. T., de Gasperin,

F., Harwood, J. J., Hoeft, M., Iacobelli, M., McKean, J. P., Mechev, A. P., Miley, G. K., Schwarz, D. J., & van Weeren, R. J. (2019). The LOFAR Two-metre Sky Survey. III. First data release: Optical/infrared identifications and value-added catalogue. A&A, 622, A2.

442. Willis, A. G., Strom, R. G., & Wilson, A. S. (1974). 3C236, DA240; the largest radio sources known. Nature, 250(5468), 625–630.

443. Willott, C. J., Rawlings, S., Blundell, K. M., & Lacy, M. (1999). The emission line-radio correlation for radio sources using the 7C Redshift Survey. MNRAS, 309(4), 1017–1033.

444. Wiltschko, R. & Wiltschko, W. (2013). The magnetite-based receptors in the beak of birds and their role in avian navigation. *J Comp Physiol A Neuroethol Sens Neural Behav Physiol*, 199(2), 89–98.

445. Wolf, E. (1969). Three-dimensional structure determination of semi-transparent objects from holographic data. *Optics Communications*, 1, 153–156.

446. Wright, E. L., Eisenhardt, P. R. M., Mainzer, A. K., Ressler, M. E., Cutri, R. M., Jarrett, T., Kirkpatrick, J. D., Padgett, D., McMillan, R. S., Skrutskie, M., Stanford, S. A., Cohen, M., Walker, R. G., Mather, J. C., Leisawitz, D., Gautier, Thomas N., I., McLean, I., Benford, D., Lonsdale, C. J., Blain, A., Mendez, B., Irace, W. R., Duval, V., Liu, F., Royer, D., Heinrichsen, I., Howard, J., Shannon, M., Kendall, M., Walsh, A. L., Larsen, M., Cardon, J. G., Schick, S., Schwalm, M., Abid, M., Fabinsky, B., Naes, L., & Tsai, C.-W. (2010). The Wide-field Infrared Survey Explorer (WISE): Mission Description and Initial On-orbit Performance. AJ, 140(6), 1868–1881.

447. Wu, L., Wang, D., & A. Evans, J. (2019). Large teams develop and small teams disrupt science and technology. *Nature*, 566, 1.

448. Xu, H., O'Shea, B. W., Collins, D. C., Norman, M. L., Li, H., & Li, S. (2008). The Biermann Battery in Cosmological MHD Simulations of Population III Star Formation. ApJ, 688(2), L57.

449. Xu, R., Spitkovsky, A., & Caprioli, D. (2020). Electron Acceleration in One-dimensional Nonrelativistic Quasi-perpendicular Collisionless Shocks. ApJ, 897(2), L41.

450. Yahil, A. & Vidal, N. V. (1977). The Velocity Distribution of Galaxies in Clusters. ApJ, 214, 347–350.

451. Yang, H. Y. K., Gaspari, M., & Marlow, C. (2019a). The Impact of Radio AGN Bubble Composition on the Dynamics and Thermal Balance of the Intracluster Medium. ApJ, 871(1), 6.

452. Yang, Y., Wan, M., Matthaeus, W. H., Shi, Y., Parashar, T. N., Lu, Q., & Chen, S. (2019b). Role of magnetic field curvature in magnetohydrodynamic turbulence. *Physics of Plasmas*, 26(7), 072306.

453. Yeh, K. C. (1962). Propagation of spherical waves through an ionosphere containing anisotropic irregularities. *Journal of Research of National Bureau of Standards*, 5, 621–636.

454. Yeh, K. C. & Swenson, Jr., G. W. (1959). The scintillation of radio signals from satellites. J. Geophys. Res., 64, 2281–2286.

455. York, D. G., Adelman, J., Anderson, John E., J., Anderson, S. F., Annis, J., Bahcall, N. A., Bakken, J. A., Barkhouser, R., Bastian, S., Berman, E., Boroski, W. N., Bracker, S., Briegel, C., Briggs, J. W., Brinkmann, J., Brunner, R., Burles, S., Carey, L., Carr, M. A., Castander, F. J., Chen, B., Colestock, P. L., Connolly, A. J., Crocker, J. H., Csabai, I., Czarapata, P. C., Davis, J. E., Doi, M., Dombeck, T., Eisenstein, D., Ellman, N., Elms, B. R., Evans, M. L., Fan, X., Federwitz, G. R., Fiscelli, L., Friedman, S., Frieman, J. A., Fukugita, M., Gillespie, B., Gunn, J. E., Gurbani, V. K., de Haas, E., Haldeman, M., Harris, F. H., Hayes, J., Heckman, T. M., Hennessy, G. S., Hindsley, R. B., Holm, S., Holmgren, D. J., Huang, C.-h., Hull, C., Husby, D., Ichikawa, S.-I., Ichikawa, T., Ivezić, Ž., Kent, S., Kim, R. S. J., Kinney, E., Klaene, M., Kleinman, A. N., Kleinman, S., Knapp, G. R., Korienek, J., Kron, R. G., Kunszt, P. Z., Lamb, D. Q., Lee, B., Leger, R. F., Limmongkol, S., Lindenmeyer, C., Long, D. C., Loomis, C., Loveday, J., Lucinio, R., Lupton, R. H., MacKinnon, B., Mannery, E. J., Mantsch, P. M., Margon, B., McGehee, P., McKay, T. A., Meiksin, A., Merelli, A., Monet, D. G., Munn, J. A., Narayanan, V. K., Nash, T., Neilsen, E., Neswold, R., Newberg, H. J., Nichol, R. C., Nicinski, T., Nonino, M., Okada, N., Okamura, S., Ostriker, J. P., Owen, R., Pauls, A. G., Peoples, J., Peterson, R. L., Petravick, D., Pier, J. R., Pope, A., Pordes, R., Prosapio, A., Rechenmacher, R., Quinn, T. R., Richards, G. T., Richmond, M. W., Rivetta, C. H., Rockosi, C. M., Ruthmansdorfer, K., Sand ford, D., Schlegel, D. J., Schneider, D. P., Sekiguchi, M., Sergey, G., Shimasaku, K., Siegmund, W. A., Smee, S., Smith, J. A., Snedden, S., Stone, R., Stoughton, C., Strauss, M. A., Stubbs, C., SubbaRao, M., Szalay, A. S., Szapudi, I., Szokoly, G. P., Thakar, A. R., Tremonti, C., Tucker, D. L., Uomoto, A., Vanden Berk, D., Vogeley, M. S., Waddell, P., Wang, S.-i., Watanabe, M., Weinberg, D. H., Yanny, B., Yasuda, N., & SDSS Collaboration (2000). The Sloan Digital Sky Survey: Technical Summary. AJ, 120(3), 1579–1587.

456. Zel'dovich, Y. B. (1970). Reprint of 1970A&A.....5...84Z. Gravitational instability: an approximate theory for large density perturbations. A&A, 500, 13–18.

457. Zernike, F. (1938). The concept of degree of coherence and its application to optical problems. *Physica*, 5(8), 785–795.

458. Zhang, H., Li, F., Liu, S., Zhang, L., Su, H., Zhu, J., Ni, L. M., & Shum, H.-Y. (2022). DINO: DETR with Improved

DeNoising Anchor Boxes for End-to-End Object Detection. *arXiv e-prints*, (pp. arXiv:2203.03605).

459. Zheng, H., Tegmark, M., Dillon, J. S., Kim, D. A., Liu, A., Neben, A. R., Jonas, J., Reich, P., & Reich, W. (2017). An improved model of diffuse galactic radio emission from 10 MHz to 5 THz. MNRAS, 464(3), 3486–3497.

460. Zou, H., Gao, J., Xu, X., Zhou, X., Ma, J., Zhou, Z., Zhang, T., Nie, J., Wang, J., & Xue, S. (2021). Galaxy Clusters from the DESI Legacy Imaging Surveys. I. Cluster Detection. ApJS, 253(2), 56.

461. Zou, H., Sui, J., Xue, S., Zhou, X., Ma, J., Zhou, Z., Nie, J., Zhang, T., Feng, L., Shen, Z., & Wang, J. (2022). Photometric Redshifts and Galaxy Clusters for DES DR2, DESI DR9, and HSC-SSP PDR3 Data. *Research in Astronomy and Astrophysics*, 22(6), 065001.