Exploring the edge

Contigiani, O.

List of publications

Dynamical cluster masses from photometric surveys
Omar Contigiani and the KiDS collaboration
2021, Astronomy & Astrophysics (to be submitted, **Chapter 5**)

Unifying gravitational waves and dark energy
Alice Garoffolo and Omar Contigiani
2021, Physical Review D (submitted)

Early warning for healthcare acquired infections in neonatal care units in a low resource setting using routinely collected hospital data: the experience from Haiti, 2014-2018.
Annick Lenglet, Omar Contigiani, Cono Ariti *et al.*
2021, PLOS Global Public Health (submitted)

Learning how to surf: Reconstructing the propagation and origin of gravitational waves with Gaussian Processes
Guadalupe Cañas-Herrera, Omar Contigiani, and Valeri Vardanyan
2021, The Astrophysical Journal, 918, 20 (**Chapter 6**)

The mass-size relation of galaxy clusters
Omar Contigiani, Yannick M. Bahé, and Henk Hoekstra
2021, Monthly Notices of the Royal Astronomical Society, 505, 2932 **(Chapter 4)**

Cross-correlation of the astrophysical gravitational-wave background with galaxy clustering
Guadalupe Cañas-Herrera, Omar Contigiani, and Valeri Vardanyan
2020, Physical Review D, 102, 043513 **(Chapter 6)**

Lensing efficiency for gravitational wave mergers
Omar Contigiani
2020, Monthly Notices of the Royal Astronomical Society, 492, 3359 **(Chapter 6)**

On measuring the Galactic dark matter halo with hypervelocity stars
Omar Contigiani, Elena Maria Rossi, and Tommaso Marchetti
2019, Monthly Notices of the Royal Astronomical Society, 487, 4025

Weak lensing constraints on splashback around massive clusters
Omar Contigiani, Henk Hoekstra, and Yannick Bahé
2019, Monthly Notices of the Royal Astronomical Society, 485, 408 **(Chapter 2)**

Splashback radius in symmetron gravity
Omar Contigiani, Valeri Vardanyan, and Alessandra Silvestri
2019, Physical Review D, 99, 064030 **(Chapter 3)**

Predicting the hypervelocity star population in Gaia
Tommaso Marchetti, Omar Contigiani, Elena Maria Rossi *et al.*
2018, Monthly Notices of the Royal Astronomical Society, 476, 4697

Radio Galaxy Zoo: cosmological alignment of radio sources
Omar Contigiani, Francesco de Gasperin, George Miley *et al.*
2017, Monthly Notices of the Royal Astronomical Society, 472, 636

Curriculum vitae

I was born on the 14th of October 1992 to Vittorio Contigiani and Hend Achouri in Montevarchi, Italy. As a child, I spent my time climbing trees in the hills surrounding the Arno Valley and, perhaps unsurprisingly, I started considering an academic career only later in life. My passion for science began during the final years of my high-school education, when I learned to appreciate the elegance of mathematics and the pleasure of discovering something new. In retrospect, I now realize that I owe my enthusiasm to my biology teacher, Elio Barbuti. He was the first who showed me the stunning complexity of science and focused my attention towards one of the greatest examples of it, Charles Darwin's On the Origin of Species. True to my inquisitive nature and bookworm inclinations, I kept reading and enjoyed other similar works, including the Dialogue Concerning the Two Chief World Systems by Galileo and Six Not-So-Easy Pieces by Feynman. The beauty of the descriptions and the powerful subtlety of the arguments presented in these books are what cemented my interest, and eventually led to me obtaining a bachelor's degree in physics at the University of Florence in 2015. Despite following only two astronomy-related courses, I later ended up specializing in cosmology.

When asked about my University career, I like to mention that I attended "graduate school" in Leiden, since I stayed there for both a master's degree and a doctorate. In particular, for my PhD I was offered a de Sitter fellowship. This joint program between the Leiden Observatory and the Lorentz Institute for Theoretical Physics gave me the opportunity to independently develop my science goals and learn from experts in multiple fields. During these six years, I was mentored by numerous advisors: a radio astronomer (Francesco de Gasperin), a theoretical astrophysicist (Elena Rossi), and, last but not least, the supervisors of this thesis: a theoretical (Alessandra Silvestri) and an observational (Henk Hoekstra) cosmologist. During my time in Leiden, I also had the opportunity of supervising students both as a master thesis co-supervisor and as a teaching assistant. For my work in this second role, I was awarded a Teaching Assistant Award by the educational board of the physics department. In my research activities, I had the pleasure of collaborating with people from four continents and I presented my work at numerous conferences. The first of these, the 11th Kosmologietag at the Univer-

sity of Bielefeld, was during my master's and, in the subsequent years, I have presented (sometimes virtually) in Canada, France, Germany, Italy, Spain, United Kingdom, and United States.

Guided by a desire for new challenges, I spent some of my time volunteering for the Amsterdam operational center of Médecins Sans Frontières (Doctors Without Borders). Starting from January 2020, I helped epidemiologists and doctors in analysing and modeling data concerning the onset of antimicrobial resistance in low-resource hospital settings. Motivated by a similar curiosity, I was also involved in outreach and projects at the intersection between science and art. I participated in a theater performance centered on the concept of time (60 in real time) as an expert guest, and I was part of a Nederlands Dans Theater workshop where scientists, coreaographers, dancers and composers worked together to combine their creative processes (Open Space 2021). Collaborating with world-class experts has given me a new appreciation for the versatility of the skill set I have acquired and the ability to participate in such diverse activities. Dedication and sacrifice are sometimes mistaken as exclusive properties of an academic life, but in my experience this could not be further from the truth.

In the fall of 2021, I began a postdoctoral fellowship at the Canadian Institute for Theoretical Astrophysics in Toronto. In the next few years, I plan to continue there my work on of the growth of the largest structures and gravitational wave cosmology.

Acknowledgments

After two degrees and many other adventures, I am happy to say that I have changed a great deal during my time in the Netherlands. I probably would not even recognize the young man who first came to Leiden six years ago, and I am grateful for every interaction that has contributed to this growth: prolonged, short, negative, positive, and everything in between.

I am indebted to the administrative staff, the many mentors, and a multitude of colleagues who have supported me throughout this period. You have pushed me to do more and do better. Your dedication has inspired me, and I was lucky to have had the opportunity to work in the vibrant environment you have created. I am also thankful for the many experiences I shared with acquaintances, friends, and more outside of the workplace. The good times we have spent together have made me a happier, more confident person, and they should not be left unrecognized. Some of you come and go, and some of you might now be far, but hopefully, never *too* faraway.

If you are reading these acknowledgments, there is a good chance that you were one of the catalysts behind these changes. It might not be easy, but I hope to pay it forward and give as much as I have received – Thank you.