Warm and cold gas in low-mass protostars : Herschel Space Observatory and ground-based surveys

Yildiz, U

Bibliography

Acharyya, K., Fuchs, G. W., Fraser, H. J., van Dishoeck, E. F., & Linnartz, H. 2007, A&A, 466, 1005

Alonso-Albi, T., Fuente, A., Crimier, N., et al. 2010, A&A, 518, A52

Andersson, S. & van Dishoeck, E. F. 2008, A&A, 491, 907

André, P. & Montmerle, T. 1994, ApJ, 420, 837

André, P., Ward-Thompson, D., & Barsony, M. 2000, Protostars & Planets IV, 59

Arasa, C., Andersson, S., Cuppen, H. M., van Dishoeck, E. F., & Kroes, G.-J. 2010, J. Chem. Phys., 132, 184510

Arce, H. G., Borkin, M. A., Goodman, A. A., Pineda, J. E., & Halle, M. W. 2010, ApJ, 715, 1170

Arce, H. G. & Sargent, A. I. 2006, ApJ, 646, 1070

Arce, H. G., Shepherd, D., Gueth, F., et al. 2007, Protostars and Planets V, 245

Ayotte, P., Scott, S. R., Stevenson, K. P., et al. 2001, J. Geophys. Res., 106, 33387

Bachiller, R., Liechti, S., Walmsley, C. M., & Colomer, F. 1995, A&A, 295, L51

Bachiller, R., Martin-Pintado, J., Tafalla, M., Cernicharo, J., & Lazareff, B. 1990, A&A, 231, 174

Bachiller, R. & Perez Gutierrez, M. 1997, ApJ, 487, L93

Bachiller, R. & Tafalla, M. 1999, in NATO ASIC Proc. 540: The Origin of Stars and Planetary Systems, ed. C. J. Lada & N. D. Kylafis, 227

Benedettini, M., Busquet, G., Lefloch, B., et al. 2012, A&A, 539, L3

Bergin, E. A. & Langer, W. D. 1997, ApJ, 486, 316

Bergin, E. A., Langer, W. D., & Goldsmith, P. F. 1995, ApJ, 441, 222

Bergin, E. A., Melnick, G. J., Stauffer, J. R., et al. 2000, ApJ, 539, L129

Bergin, E. A. & Snell, R. L. 2002, ApJ, 581, L105

Bergin, E. A. & Tafalla, M. 2007, ARA&A, 45, 339

Bjerkeli, P., Liseau, R., Larsson, B., et al. 2012, A&A, 546, A29

Black, J. H. & Smith, P. L. 1984, ApJ, 277, 562

Blake, G. A., Sandell, G., van Dishoeck, E. F., et al. 1995, ApJ, 441, 689

Bontemps, S., André, P., Terebey, S., & Cabrit, S. 1996, A&A, 311, 858

Bottinelli, S., Ceccarelli, C., Williams, J. P., & Lefloch, B. 2007, A&A, 463, 601

Bourke, T. L., Garay, G., Lehtinen, K. K., et al. 1997, ApJ, 476, 781

Brown, D. W. & Chandler, C. J. 1999, MNRAS, 303, 855

Buckle, J. V., Hills, R. E., Smith, H., et al. 2009, MNRAS, 399, 1026

Cabrit, S. & Bertout, C. 1990, ApJ, 348, 530

Cabrit, S. & Bertout, C. 1992, A&A, 261, 274

Carty, D., Goddard, A., Kohler, S., Sims, I., & Smith, I. 2006, J. Phys. Chem. A, 110, 3101

Caselli, P. & Ceccarelli, C. 2012, A&A Rev., 20, 56

Ceccarelli, C., Caselli, P., Herbst, E., Tielens, A. G. G. M., & Caux, E. 2007, Protostars and Planets V, 47

Chen, H., Myers, P. C., Ladd, E. F., & Wood, D. O. S. 1995, ApJ, 445, 377

Chiang, H., Looney, L. W., Tassis, K., Mundy, L. G., & Mouschovias, T. C. 2008, ApJ, 680, 474
Choi, M., Kang, M., Tatematsu, K., Lee, J.-E., & Park, G. 2011, PASJ, 63, 1281
Collings, M. P., Anderson, M. A., Chen, R., et al. 2004, MNRAS, 354, 1133
Collings, M. P., Dever, J. W., Fraser, H. J., McCoustra, M. R. S., & Williams, D. A. 2003, ApJ, 583, 1058
Congiu, E., Fedoseev, G., Ioppolo, S., et al. 2012, ApJ, 750, L12
Cuppen, H. M. & Herbst, E. 2007, ApJ, 668, 294
Cuppen, H. M., Ioppolo, S., Romanzin, C., & Linnartz, H. 2010, Phys. Chem. Chem. Phys., 12, 12077
Curtis, E. I., Richer, J. S., & Buckle, J. V. 2010a, MNRAS, 401, 455
Curtis, E. I., Richer, J. S., Swift, J. J., & Williams, J. P. 2010b, MNRAS, 408, 1516
de Graauw, T., Helmich, F. P., Phillips, T. G., et al. 2010, A&A, 518, L6
Dent, W., Duncan, W., Ellis, M., et al. 2000, in Astronomical Society of the Pacific Conference Series, Vol. 217, Imaging at Radio through Submillimeter Wavelengths, ed. J. G. Mangum & S. J. E. Radford, 33
Desmurs, J.-F., Codella, C., Santiago-García, J., Tafalla, M., & Bachiller, R. 2009, A&A, 498, 753
Di Francesco, J., Johnstone, D., Kirk, H., MacKenzie, T., & Ledwosinska, E. 2008, ApJS, 175, 277
Downes, T. P. & Cabrit, S. 2007, A&A, 471, 873
Drouin, B. J., Yu, S., Miller, C. E., et al. 2010, J. Quant. Spectrosc. Rad. Trans., 111, 1167
Du, F., Parise, B., & Bergman, P. 2012, A&A, 538, A91
Dunham, M. M., Arce, H. G., Allen, L. E., et al. 2013, ArXiv: 1301.4416
Dunham, M. M., Evans, II, N. J., Terebey, S., Dullemond, C. P., & Young, C. H. 2010, ApJ, 710, 470
Enoch, M. L., Evans, II, N. J., Sargent, A. I., & Glenn, J. 2009, ApJ, 692, 973
Evans, N. J., Dunham, M. M., Jørgensen, J. K., et al. 2009, ApJS, 181, 321
Franklin, J., Snell, R. L., Kaufman, M. J., et al. 2008, ApJ, 674, 1015
Fuente, A., Caselli, P., McCoey, C., et al. 2012, A&A, 540, A75
Fuller, G. A. & Ladd, E. F. 2002, ApJ, 573, 699
Garrod, R. T. & Herbst, E. 2006, A&A, 457, 927
Garrod, R. T., Wakelam, V., & Herbst, E. 2007, A&A, 467, 1103
Garrod, R. T., Weaver, S. L. W., & Herbst, E. 2008, ApJ, 682, 283
Giannini, T., Nisini, B., & Lorenzetti, D. 2001, ApJ, 555, 40
Goicoechea, J. R., Cernicharo, J., Karska, A., et al. 2012, A&A, 548, A77
Goldsmith, P. F., Liseau, R., Bell, T. A., et al. 2011, ApJ, 737, 96
Goldsmith, P. F., Melnick, G. J., Bergin, E. A., et al. 2000, ApJ, 539, L123
Goldsmith, P. F., Snell, R. L., Erickson, N. R., et al. 1985, ApJ, 289, 613
Goldsmith, P. F., Snell, R. L., Hemeon-Heyer, M., & Langer, W. D. 1984, ApJ, 286, 599
Green, J., Evans, N., Jørgensen, J., et al. 2013; subm., ApJ
Greene, T. P., Wilking, B. A., André, P., Young, E. T., & Lada, C. J. 1994, ApJ, 434, 614
Gregersen, E. M., Evans, II, N. J., Zhou, S., & Choi, M. 1997, ApJ, 484, 256
Griffin, M. J., Abergel, A., Abreu, A., et al. 2010, A&A, 518, L3
Gueth, F., Guilloteau, S., & Bachiller, R. 1996, A&A, 307, 891
Güsten, R., Baryshev, A., Bell, A., et al. 2008, in SPIE Conference Series, Vol. 7020
Gutermuth, R. A., Myers, P. C., Megeath, S. T., et al. 2008, ApJ, 674, 336

Habart, E., Dartois, E., Abergel, A., et al. 2010, A&A, 518, L116
Harsono, D., Visser, R., Bruderer, S., et al. subm., A&A
Hasegawa, T. I. & Herbst, E. 1993, MNRAS, 261, 83
Hatchell, J. & Fuller, G. A. 2008, A&A, 482, 855
Hatchell, J., Fuller, G. A., & Richer, J. S. 2007, A&A, 472, 187
Hatchell, J., Richer, J. S., Fuller, G. A., et al. 2005, A&A, 440, 151
Hayashi, C., Hoshi, R., & Sugimoto, D. 1962, Progress of Theoretical Physics Supplement, 22, 1
Hayashi, M., Hasegawa, T., Ohashi, N., & Sunada, K. 1994, ApJ, 426, 234
Herbst, E. & Klemperer, W. 1973, ApJ, 185, 505
Herbst, E. & van Dishoeck, E. F. 2009, ARA&A, 47, 427
Herczeg, G. J., Karska, A., Bruderer, S., et al. 2012, A&A, 540, A84
Hirota, T., Bushimata, T., Choi, Y. K., et al. 2008, PASJ, 60, 37
Ho, P. T. P. & Barrett, A. H. 1980, ApJ, 237, 38
Hogerheijde, M. R. & van der Tak, F. F. S. 2000, A&A, 362, 697
Hogerheijde, M. R., van Dishoeck, E. F., Blake, G. A., & van Langevelde, H. J. 1997, ApJ, 489, 293
Hogerheijde, M. R., van Dishoeck, E. F., Blake, G. A., & van Langevelde, H. J. 1998, ApJ, 502, 315
Hollenbach, D., Kaufman, M. J., Bergin, E. A., & Melnick, G. J. 2009, ApJ, 690, 1497
Ioppolo, S., Cuppen, H. M., Romanzin, C., van Dishoeck, E. F., & Linnartz, H. 2008, ApJ, 686, 1474
Ivezić, Z. & Elitzur, M. 1997, MNRAS, 287, 799
Jennings, R. E., Cameron, D. H. M., Cudlip, W., & Hirst, C. J. 1987, MNRAS, 226, 461
Johnstone, D., Boonman, A. M. S., & van Dishoeck, E. F. 2003, A&A, 412, 157
Johnstone, D., Hendricks, B., Herczeg, G. J., & Bruderer, S. 2013, ArXiv: 1301.7341
Jørgensen, J. K., Bourke, T. L., Myers, P. C., et al. 2007, ApJ, 659, 479
Jørgensen, J. K., Bourke, T. L., Myers, P. C., et al. 2005a, ApJ, 632, 973
Jørgensen, J. K., Schöier, F. L., & van Dishoeck, E. F. 2002, A&A, 389, 908
Jørgensen, J. K., Schöier, F. L., & van Dishoeck, E. F. 2004, A&A, 416, 603
Jørgensen, J. K., Schöier, F. L., & van Dishoeck, E. F. 2005b, A&A, 437, 501
Jørgensen, J. K., Schöier, F. L., & van Dishoeck, E. F. 2005c, A&A, 435, 177
Jørgensen, J. K., van Dishoeck, E. F., Visser, R., et al. 2009, A&A, 507, 861
Karska, A., Herczeg, G. J., van Dishoeck, E. F., et al. 2013, ArXiv: 1301.4821
Kasemann, C., Güsten, R., Heyminck, S., et al. 2006, in SPIE Conference Series, Vol. 6275
Kauffmann, J., Bertoldi, F., Bourke, T. L., Evans, II, N. J., & Lee, C. W. 2008, A&A, 487, 993
Kennicutt, R. C. & Evans, N. J. 2012, ARA&A, 50, 531
Kenyon, S. J., Hartmann, L. W., Strom, K. M., & Strom, S. E. 1990, AJ, 99, 869
Klein, B., Philipp, S. D., Krämer, I., et al. 2006, A&A, 454, L29
Knee, L. B. G. & Sandell, G. 2000, A&A, 361, 671
Kristensen, L. E. & van Dishoeck, E. F. 2011, Astronomische Nachrichten, 332, 475
Kristensen, L. E., van Dishoeck, E. F., Bergin, E. A., et al. 2012, A&A, 542, A8
Kristensen, L. E., van Dishoeck, E. F., Tafalla, M., et al. 2011, A&A, 531, L1
Kristensen, L. E., Visser, R., van Dishoeck, E. F., et al. 2010, A&A, 521, L30
Lacy, J. H., Knacke, R., Geballe, T. R., & Tokunaga, A. T. 1994, ApJ, 428, L69

Lada, C. J. 1987, in IAU Symposium, Vol. 115, Star Forming Regions, ed. M. Peimbert & J. Jugaku, 1–17
Lada, C. J. 1999, in NATO ASIC Proc. 540: The Origin of Stars and Planetary Systems, ed. C. J. Lada & N. D. Kylafis, 143
Lada, C. J. & Wilking, B. A. 1984, ApJ, 287, 610
Langer, W. D. & Penzias, A. A. 1990, ApJ, 357, 477
Larsson, B., Liseau, R., Pagani, L., et al. 2007, A&A, 466, 999
Lay, O. P., Carlstrom, J. E., & Hills, R. E. 1995, ApJ, 452, L73
Lee, C.-F., Mundy, L. G., Stone, J. M., & Ostriker, E. C. 2002, ApJ, 576, 294
Lee, J.-E., Bergin, E. A., & Evans, II, N. J. 2004, ApJ, 617, 360
Lefloch, B., Cabrit, S., Codella, C., et al. 2010, A&A, 518, L113
Lefloch, B., Castets, A., Cernicharo, J., & Loinard, L. 1998, ApJ, 504, L109
Lemke, D. 2008, Sterne und Weltraum, January, p36
Lin, S. Y., Guo, H., Honvault, P., Xu, C., & Xie, D. 2008, J. Chem. Phys., 128
Lique, F. 2010, J. Chem. Phys., 132, 044311
Liseau, R., Goldsmith, P. F., Larsson, B., et al. 2012, A&A, 541, A73
Liseau, R., Sandell, G., & Knee, L. B. G. 1988, A&A, 192, 153
Lommen, D., Jørgensen, J. K., van Dishoeck, E. F., & Crapsi, A. 2008, A&A, 481, 141
Looney, L. W., Mundy, L. G., & Welch, W. J. 2000, ApJ, 529, 477
Loren, R. B. 1976, ApJ, 209, 466
Loren, R. B. 1989, ApJ, 338, 902
Maloney, P. & Black, J. H. 1988, ApJ, 325, 389
Manoj, P., Watson, D. M., Neufeld, D. A., et al. 2013, ApJ, 763, 83
McKellar, A. 1940, PASP, 52, 187
Melnick, G. J., Stauffer, J. R., Ashby, M. L. N., et al. 2000, ApJ, 539, L77
Melnick, G. J., Tolls, V., Goldsmith, P. F., et al. 2012, ApJ, 752, 26
Micono, M., Davis, C. J., Ray, T. P., Eisloeffel, J., & Shetrone, M. D. 1998, ApJ, 494, L227
Mokrane, H., Chaabouni, H., Accolla, M., et al. 2009, ApJ, 705, L195
Muñoz Caro, G. M., Jiménez-Escobar, A., Martín-Gago, J. Á., et al. 2010, A&A, 522, A108
Müller, H. S. P., Schlöder, F., Stutzki, J., & Winnewisser, G. 2005, Journal of Molecular Structure, 742, 215
Myers, P. C., Evans, II, N. J., & Ohashi, N. 2000, Protostars and Planets IV, 217
Myers, P. C. & Ladd, E. F. 1993, ApJ, 413, L47
Neininger, N., Guélin, M., Ungerechts, H., Lucas, R., & Wielebinski, R. 1998, Nature, 395, 871
Neufeld, D. A. & Dalgarno, A. 1989, ApJ, 340, 869
Nisini, B., Benedettini, M., Codella, C., et al. 2010, A&A, 518, L120
Nisini, B., Santangelo, G., Antoniucci, S., et al. 2013, A&A, 549, A16
Nordh, H. L., von Schéele, F., Frisk, U., et al. 2003, A&A, 402, L21
Öberg, K. I., Linnartz, H., Visser, R., & van Dishoeck, E. F. 2009a, ApJ, 693, 1209
Öberg, K. I., van Broekhuizen, F., Fraser, H. J., et al. 2005, ApJ, 621, L33
Öberg, K. I., van Dishoeck, E. F., & Linnartz, H. 2009b, A&A, 496, 281
Ossenkopf, V. & Henning, T. 1994, A&A, 291, 943
Ott, S. 2010, in Astronomical Society of the Pacific Conference Series, Vol. 434, Astronomical Data Analysis Software and Systems XIX, ed. Y. Mizumoto, K.-I. Morita, & M. Ohishi, 139

Pagani, L., Langer, W. D., & Castets, A. 1993, A&A, 274, L13
Pagani, L., Olofsson, A. O. H., Bergman, P., et al. 2003, A&A, 402, L77
Parise, B., Belloche, A., Leurini, S., et al. 2006, A&A, 454, L79
Pickett, H. M., Poynter, R. L., Cohen, E. A., et al. 2010, Journal of Quantitative Spectroscopy & Radiative Transfer, 111, 1617
Pilbratt, G. L., Riedinger, J. R., Passvogel, T., et al. 2010, A&A, 518, L1
Plume, R., Bergin, E. A., Phillips, T. G., et al. 2012, ApJ, 744, 28
Poglitsch, A., Waelkens, C., Geis, N., et al. 2010, A&A, 518, L2
Ridge, N. A., Di Francesco, J., Kirk, H., et al. 2006, AJ, 131, 2921
Roberts, H. & Herbst, E. 2002, A&A, 395, 233
Robitaille, T. P., Whitney, B. A., Indebetouw, R., Wood, K., & Denzmore, P. 2006, ApJS, 167, 256
Roelfsema, P. R., Helmich, F. P., Teyssier, D., et al. 2012, A&A, 537, A17
Romanzin, C., Arzoumanian, E., Es-Sebbar, E., et al. 2010, Planet. Space Sci., 58, 1748
Ruffle, D. P. & Herbst, E. 2000, MNRAS, 319, 837
San José-García, I., Mottram, J. C., Kristensen, L. E., et al. 2013, ArXiv e-prints
Sandell, G., Aspin, C., Duncan, W. D., Russell, A. P. G., & Robson, E. I. 1991, ApJ, 376, L17
Sandell, G. & Knee, L. B. G. 2001, ApJ, 546, L49
Santangelo, G., Nisini, B., Giannini, T., et al. 2012, A&A, 538, A45
Saraceno, P., Andre, P., Ceccarelli, C., Griffin, M., & Molinari, S. 1996, A&A, 309, 827
Schöier, F. L., Jørgensen, J. K., van Dishoeck, E. F., & Blake, G. A. 2002, A&A, 390, 1001
Schöier, F. L., Jørgensen, J. K., van Dishoeck, E. F., & Blake, G. A. 2004, A&A, 418, 185
Schöier, F. L., van der Tak, F. F. S., van Dishoeck, E. F., & Black, J. H. 2005, A&A, 432, 369
Shen, C. J., Greenberg, J. M., Schutte, W. A., & van Dishoeck, E. F. 2004, A&A, 415, 203
Shirley, Y. L., Evans, II, N. J., & Rawlings, J. M. C. 2002, ApJ, 575, 337
Shirley, Y. L., Evans, II, N. J., Rawlings, J. M. C., & Gregersen, E. M. 2000, ApJS, 131, 249
Shu, F. H., Adams, F. C., & Lizano, S. 1987, ARA&A, 25, 23
Smith, H., Buckle, J., Hills, R., et al. 2008, in SPIE Conference Series, Vol. 7020
Smith, I. W. M., Herbst, E., & Chang, Q. 2004, MNRAS, 350, 323
Snell, R. L., Loren, R. B., & Plambeck, R. L. 1980, ApJ, 239, L17
Spaans, M., Hogerheijde, M. R., Mundy, L. G., & van Dishoeck, E. F. 1995, ApJ, 455, L167
Swings, P. & Rosenfeld, L. 1937, ApJ, 86, 483
Tachihara, K., Onishi, T., Mizuno, A., & Fukui, Y. 2002, A&A, 385, 909
Tafalla, M., Liseau, R., Nisini, B., et al. 2013, ArXiv: 1301.5322
Tafalla, M., Myers, P. C., Caselli, P., & Walmsley, C. M. 2004, A&A, 416, 191
Tafalla, M., Myers, P. C., Mardones, D., & Bachiller, R. 2000, A&A, 359, 967
Tafalla, M., Santiago-García, J., Hacar, A., & Bachiller, R. 2010, A&A, 522, A91
Tielens, A. G. G. M. & Hagen, W. 1982, A&A, 114, 245
Tobin, J. J., Hartmann, L., Calvet, N., & D'Alessio, P. 2008, ApJ, 679, 1364
Černis, K. 1990, Ap&SS, 166, 315
van der Marel, N., Kristensen, L. E., Visser, R., et al. 2013; subm., A&A
van der Tak, F. F. S., Black, J. H., Schöier, F. L., Jansen, D. J., & van Dishoeck, E. F. 2007, A&A, 468, 627
van der Werf, P. P., Isaak, K. G., Meijerink, R., et al. 2010, A&A, 518, L42
van Dishoeck, E. F. & Black, J. H. 1988, ApJ, 334, 771

van Dishoeck, E. F. & Blake, G. A. 1998, ARA&A, 36, 317
van Dishoeck, E. F., Kristensen, L. E., Benz, A. O., et al. 2011, PASP, 123, 138
van Dishoeck, E. F., van Kempen, T. A., & Güsten, R. 2009, in Astronomical Society of the Pacific Conference Series, Vol. 417, Submillimeter Astrophysics and Technology: a Symposium Honoring Thomas G. Phillips, ed. D. C. Lis, J. E. Vaillancourt, P. F. Goldsmith, T. A. Bell, N. Z. Scoville, & J. Zmuidzinas, 203
van Kempen, T. A., Green, J. D., Evans, N. J., et al. 2010a, A&A, 518, L128
van Kempen, T. A., Hogerheijde, M. R., van Dishoeck, E. F., et al. 2006, A&A, 454, L75
van Kempen, T. A., Kristensen, L. E., Herczeg, G. J., et al. 2010b, A&A, 518, L121
van Kempen, T. A., van Dishoeck, E. F., Güsten, R., et al. 2009a, A&A, 507, 1425
van Kempen, T. A., van Dishoeck, E. F., Güsten, R., et al. 2009b, A&A, 501, 633
van Kempen, T. A., van Dishoeck, E. F., Hogerheijde, M. R., & Güsten, R. 2009c, A&A, 508, 259
van Kempen, T. A., van Dishoeck, E. F., Salter, D. M., et al. 2009d, A&A, 498, 167
Vasta, M., Codella, C., Lorenzani, A., et al. 2012, A&A, 537, A98
Visser, R. & Dullemond, C. P. 2010, A&A, 519, A28
Visser, R., Kristensen, L. E., Bruderer, S., et al. 2012, A&A, 537, A55
Visser, R., van Dishoeck, E. F., Doty, S. D., & Dullemond, C. P. 2009, A&A, 495, 881
Vladilo, G., Centurion, M., & Cassola, C. 1993, A&A, 273, 239
Volgenau, N. H., Mundy, L. G., Looney, L. W., & Welch, W. J. 2006, ApJ, 651, 301
Walawender, J., Bally, J., Francesco, J. D., Jørgensen, J., & Getman, K. . 2008, NGC 1333: A Nearby Burst of Star Formation (Handbook of Star Forming Regions, Volume I: The Northern Sky ASP Monograph Publications, Vol. 4.), 346
Walter, F. M. 1987, PASP, 99, 31
Ward-Thompson, D., André, P., Crutcher, R., et al. 2007, Protostars and Planets V, 33
Weiss, A., Downes, D., Neri, R., et al. 2007a, A&A, 467, 955
Weiss, A., Downes, D., Walter, F., & Henkel, C. 2007b, in Astronomical Society of the Pacific Conference Series, Vol. 375, From Z-Machines to ALMA: (Sub)Millimeter Spectroscopy of Galaxies, ed. A. J. Baker, J. Glenn, A. I. Harris, J. G. Mangum, & M. S. Yun , 25
Wilson, R. W., Jefferts, K. B., & Penzias, A. A. 1970, ApJ, 161, L43
Wilson, T. L. & Rood, R. 1994, ARA&A, 32, 191
Woodall, J., Agúndez, M., Markwick-Kemper, A. J., & Millar, T. J. 2007, A&A, 466, 1197
Wright, E. L., Mather, J. C., Bennett, C. L., et al. 1991, ApJ, 381, 200
Xu, C., Xie, D., Honvault, P., Lin, S. Y., & Guo, H. 2007, Journal of Chemical Physics, 127
Yang, B., Stancil, P. C., Balakrishnan, N., & Forrey, R. C. 2010, ApJ, 718, 1062
Yıldız, U., Kristensen, L., van Dishoeck, E., et al. 2013; subm., A&A; DOI: 10.1051/0004-6361/201220849
Yıldız, U. A., Kristensen, L. E., van Dishoeck, E. F., et al. 2012, A&A, 542, A86
Yıldız, U. A., van Dishoeck, E. F., Kristensen, L. E., et al. 2010, A&A, 521, L40
Young, C. H. & Evans, II, N. J. 2005, ApJ, 627, 293

Publications

Refereed Publications

34. **Yıldız U. A.**; Kristensen, L. E.; van Dishoeck, E. F.; Belloche, A.; van Kempen, T. A.; Hogerheijde, M. R.; Guesten, R.; van der Marel, N.; *APEX-CHAMP$^+$ high-J CO observations of low–mass young stellar objects: III. NGC 1333 IRAS 4A/4B envelope, outflow and UV heating*; 2012, Astronomy & Astrophysics, Vol. 542, A86 [ADS]

33. **Yıldız, U. A.**; van Dishoeck, E. F.; Kristensen, L. E.; Visser, R.; Jørgensen, J. K.; Herczeg, G. J.; van Kempen, T. A.; Hogerheijde, M. R.; Doty, S. D.; Benz, A. O.; Bruderer, S.; Wampfler, S. F.; Deul, E.; Bachiller, R.; Baudry, A.; Benedettini, M.; Bergin, E.; Bjerkeli, P.; Blake, G. A.; Bontemps, S.; Braine, J.; Caselli, P.; Cernicharo, J.; Codella, C.; Daniel, F.; di Giorgio, A. M.; Dominik, C.; Encrenaz, P.; Fich, M.; Fuente, A.; Giannini, T.; Goicoechea, J. R.; de Graauw, Th.; Helmich, F.; Herpin, F.; Jacq, T.; Johnstone, D.; Larsson, B.; Lis, D.; Liseau, R.; Liu, F.-C.; Marseille, M.; McCoey, C.; Melnick, G.; Neufeld, D.; Nisini, B.; Olberg, M.; Parise, B.; Pearson, J. C.; Plume, R.; Risacher, C.; Santiago-García, J.; Saraceno, P.; Shipman, R.; Tafalla, M.; Tielens, A. G. G. M.; van der Tak, F.; Wyrowski, F.; Dieleman, P.; Jellema, W.; Ossenkopf, V.; Schieder, R.; Stutzki, J.; *Herschel/HIFI observations of high-J CO lines in the NGC 1333 low-mass star-forming region*; 2010, Astronomy & Astrophysics, Vol. 521, L40 [ADS]

32. **Yıldız, Umut A.**; Kristensen, L. E.; van Dishoeck, E. F.; San José-García, I.; Karska, A.; Harsono, D.; Tafalla, M.; Fuente, A.; Visser, R.; Jørgensen, J.; Hogerheijde, M.; *Water in low-mass star-forming regions with Herschel: High-J CO survey observed with HIFI*; submitted to Astronomy & Astrophysics (Chapter 3 in this thesis)

31. **Yıldız, Umut A.**; Acharyya, K.; Goldsmith, P. F.; van Dishoeck, E. F.; Melnick, G.; Liseau, R.; Chen, J-H.; Pagani, L.; Bergin, E.; Caselli, P.; Herbst, E.; Visser, R.; Gerin, M.; *Deep observations of O_2 toward a low-mass protostar with Herschel-HIFI*, To be submitted (Chapter 6 in this thesis).

30. San José-García, I; Mottram, J. C.; Kristensen L. E.; van Dishoeck E. F.; **Yıldız, U. A.**; van der Tak, F. F. S.; Herpin, F.; Visser, R.; McCoey, C.; Wyrowski, F.; Braine, J.; and Johnstone, D.; *Herschel-HIFI observations of high-J CO and isotopologues in star-forming regions: from low- to high-mass*; 2013, Astronomy & Astrophysics, in press [ADS]

29. Tafalla, M.; Liseau, R.; Nisini, B.; Bachiller, R.; Santiago-Garcia, J.; van Dishoeck, E. F.; Kristensen, L. E.; Herczeg G. J.; and **Yıldız, U. A.**; *High-pressure water in bipolar outflows, Results from a Herschel-WISH survey*; 2013, Astronomy & Astrophysics, in press [ADS]

28. Karska, A.; Herczeg, G. J.; van Dishoeck, E. F.; Wampfler, S. F.; Kristensen, L. E.; Goicoechea, J. R.; Visser, R.; Nisini, B.; San-Jose Garcia, I.; Bruderer, S.; Sniady, P.; Doty, S.; Fedele, D.; **Yıldız, U. A.**; Benz, A. O.; Bergin, E.; Caselli, P.; Herpin, F.; Hogerheijde, M. R.; Johnstone, D.; Jorgensen, J. K.; Liseau, R.; Tafalla, M.; van der Tak, F.; Wyrowski, F.; *Water in star forming regions with Herschel (WISH) III. Far-infrared cooling lines in low-mass young stellar objects* 2013, Astronomy & Astrophysics, in press [ADS]

27. Caselli, Paola; Keto, Eric; Bergin, Edwin A.; Tafalla, Mario; Aikawa, Yuri; Douglas, Thomas; Pagani, Laurent; **Yıldız, Umut A.**; van der Tak, Floris F. S.; Walmsley, C. Malcolm; Codella, Claudio; Nisini, Brunella; Kristensen, Lars E.; van Dishoeck, Ewine F.; *First detection of water vapor in a pre-stellar core*; The Astrophysical Journal Letters, 2012, Vol. 759, 37 [ADS]

26. Kristensen, L. E.; van Dishoeck, E. F.; Bergin, E. A.; Visser, R.; **Yıldız, U. A.**; San José-García, I.; Jørgensen, J. K.; Herczeg, G. J.; Johnstone, D.; Wampfler, S. F.; Benz, A. O.; Bruderer, S.; Cabrit, S.; Caselli, P.; Doty, S. D.; Harsono, D.; Herpin, F.; Hogerheijde, M. R.; Karska, A.; van Kempen, T. A.; Liseau, R.; Nisini, B.; Tafalla, M.; van der Tak, F.; Wyrowski, F.; *Water in star-forming regions with Herschel (WISH): II. Evolution of 557 GHz 1_{10}-1_{01} emission in low-mass protostars*; 2012, A&A, Vol. 542, A8 [ADS]

25. Fuente, A.; Caselli, P.; McCoey, C.; Cernicharo, J.; Johnstone, D.; Fich, M.; van Kempen, T.; van Dishoeck, E.; **Yıldız, U.**; Visser, R.; Kristensen, L.; Alonso-Albi, T.; Herpin, F.; Tisi, S.; *The abundance of $C^{18}O$ and HDO in the envelope and hot core of the intermediate mass protostar NGC 7129 FIRS 2*; 2012, A&A, Vol. 540, A75 [ADS]

24. Liseau, R.; Goldsmith, P. F.; Larsson, B.; Pagani, L.; Bergman, P.; Le Bourlot, J.; Bell, T. A.; Benz, A. O.; Bergin, E. A.; Bjerkeli, P.; Black, J. H.; Bruderer, S.; Caselli, P.; Caux, E.; Chen, J.-H.; de Luca, M.; Encrenaz, P.; Falgarone, E.; Gerin, M.; Goicoechea, J. R.; Hjalmarson, Å.; Hollenbach, D. J.; Justtanont, K.; Kaufman, M. J.; Le Petit, F.; Li, D.; Lis, D. C.; Melnick, G. J.; Nagy, Z.; Olofsson, A. O. H.; Olofsson, G.; Roueff, E.; Sandqvist, Aa.; Snell, R. L.; van der Tak, F. F. S.; van Dishoeck, E. F.; Vastel, C.; Viti, S.; **Yıldız, U. A.**; *Multi-line detection of O_2 toward ρ Oph A*; 2012, A&A, Vol. 541, A73 [ADS]

23. Herczeg, G. J.; Karska, A.; Bruderer, S.; Kristensen, L.E.; van Dishoeck, E.F.; Jørgensen, J.K.; Visser, R.; Wampfler, S. F.; Bergin, E. A.; **Yıldız, U.**; Pontoppidan, K. M.; Gracia-Carpio, J.; *Water in star-forming regions with Herschel: highly excited molecular emission from the NGC 1333 IRAS 4B outflow*; 2012, A&A, Vol. 540, A84 [ADS]

22. Roelfsema, P. R.; Helmich, F. P.; Teyssier, D.; Ossenkopf, V.; Morris, P.; Olberg, M.; Shipman, R.; Risacher, C.; and 90 co-authors incl.**Yıldız, U.**; *In-orbit performance of Herschel-HIFI*; 2012, Astronomy & Astrophysics, Vol. 537, A17 [ADS]

21. Hogerheijde, Michiel R.; Bergin, Edwin A.; Brinch, Christian; Cleeves, L. Ilsedore; Fogel, Jeffrey K. J.; Blake, Geoffrey A.; Dominik, Carsten; Lis, Dariusz C.; Melnick, Gary; Neufeld, David; Panić, Olja; Pearson, John C.; Kristensen, Lars; **Yıldız, Umut A.**; van Dishoeck, Ewine F.; *Detection of the Water Reservoir in a Forming Planetary System*; 2011, **Science**, Vol. 334 no. 6054 pp. 338-340 [ADS]

20. Goldsmith, Paul F.; Liseau, René; Bell, Tom A.; Black, John H.; Chen, Jo-Hsin; Hollenbach, David; Kaufman, Michael J.; Li, Di; Lis, Dariusz C.; Melnick, Gary; Neufeld, David; Pagani, Laurent; Snell, Ronald; Benz, Arnold O.; Bergin, Edwin; Bruderer, Simon; Caselli, Paola; Caux, Emmanuel; Encrenaz, Pierre; Falgarone, Edith; Gerin, Maryvonne; Goicoechea, Javier R.; Hjalmarson, Åke; Larsson, Bengt; Le Bourlot, Jacques; Le Petit, Franck; De Luca, Massimo; Nagy, Zsofia; Roueff, Evelyne; Sandqvist, Aage; van der Tak, Floris; van Dishoeck, Ewine F.; Vastel, Charlotte; Viti, Serena; **Yıldız, Umut**; *Herschel Measurements of Molecular Oxygen in Orion*; 2011, The Astrophysical Journal, Vol. 737, A96 [ADS]

19. Kristensen, L. E.; van Dishoeck, E. F.; Tafalla, M.; Bachiller, R.; Nisini, B.; Liseau, R.; **Yıldız, U. A.**; *Water in low-mass star-forming regions with Herschel (WISH-LM). High-velocity H_2O bullets in L1448-MM observed with HIFI*, 2010, A&A, Vol. 531, L1 [ADS]

18. van Dishoeck, E. F.; Kristensen, L. E.; Benz, A. O.; Bergin, E. A.; Caselli, P.; Cernicharo, J.; Herpin, F.; Hogerheijde, M. R.; Johnstone, D.; Liseau, R.; Nisini, B.; Shipman, R.; Tafalla, M.; van der Tak, F.; Wyrowski, F.; and 57 co-authors incl. **Yıldız, U. A.**; *Water in Star-forming Regions with the Herschel Space Observatory (WISH). I. Overview of Key Program and First Results*; 2011, PASP, 123, 138V [ADS]

17. Kristensen, L. E.; Visser, R.; van Dishoeck, E. F.; **Yıldız, U. A.**; Doty, S. D.; Herczeg, G. J.; Liu, F.-C.; Parise, B.; Jørgensen, J. K.; van Kempen, T. A.; Brinch, C.; Wampfler, S. F.; Bruderer, S.; Benz, A. O.; Hogerheijde, M. R.; Deul, E.; and the WISH Team; *Water in low-mass star-forming regions with Herschel: HIFI spectroscopy of NGC1333*; 2010, A&A, Vol. 521, L30 [ADS]

16. Caselli, P.; Keto, E.; Pagani, L.; Aikawa, Y.; **Yıldız, U. A.**; van der Tak, F. F. S.; Tafalla, M.; Bergin, E. A.; Nisini, B.; Codella, C.; van Dishoeck, E. F.; and the WISH Team; *Water vapor toward starless cores: the Herschel view*; 2010, A&A, Vol. 521, L29 [ADS]

15. Bergin, E. A.; Hogerheijde, M. R.; Brinch, C.; Fogel, J.; **Yıldız, U. A.**; Kristensen, L. E.; van Dishoeck, E. F.; Bell, T. A.; and the WISH Team; *Sensitive limits on the abundance of cold water vapor in the DM Tau protoplanetary disk*; 2010, A&A, Vol. 521, L33 [ADS]

14. Wampfler, S. F.; Herczeg, G. J.; Bruderer, S.; Benz, A. O.; van Dishoeck, E. F.; Kristensen, L. E.; Visser, R.; Doty, S. D.; Melchior, M.; van Kempen, T. A.; **Yıldız, U. A.**; Dedes, C.; Goicoechea, J. R.; Baudry, A.; Melnick, G.; and the WISH Team; *Herschel observations of the hydroxyl radical (OH) in young stellar objects*; 2010, A&A, Vol. 521, L36 [ADS]

13. Bruderer, S.; Benz, A. O.; van Dishoeck, E. F.; Melchior, M.; Doty, S. D.; van der Tak, F.; Stäuber, P.; Wampfler, S. F.; Dedes, C.; **Yıldız, U. A.**; Pagani, L.; Giannini, T.; de Graauw, Th.; and the WISH Team; *Herschel-HIFI detections of hydrides towards AFGL 2591 (Envelope emission versus tenuous cloud absorption)*; 2010, A&A, Vol. 521, L44 [ADS]

12. Johnstone, D.; Fich, M.; McCoey, C.; van Kempen, T. A.; Fuente, A.; Kristensen, L. E.; Cernicharo, J.; Caselli, P.; Visser, R.; Plume, R.; Herczeg, G. J.; van Dishoeck, E. F.; Wampfler, S.; and 48 co-authors incl. **Yıldız, U. A.**; *Herschel/HIFI spectroscopy of the intermediate mass protostar NGC 7129 FIRS 2*; 2010, A&A, Vol. 521, L41 [ADS]

11. Chavarría, L.; Herpin, F.; Jacq, T.; Braine, J.; Bontemps, S.; Baudry, A.; Marseille, M.; van der Tak, F.; Pietropaoli, B.; Wyrowski, F.; Shipman, R.; Frieswijk, W.; van Dishoeck, E. F.; Cernicharo, J.; and 48 co-authors incl. **Yıldız, U. A.**; *Water in massive star-forming regions: HIFI observations of W3 IRS5*; 2010, A&A, Vol. 521, L37 [ADS]

10. Benz, A. O.; Bruderer, S.; van Dishoeck, E. F.; Stäuber, P.; Wampfler, S. F.; Melchior, M.; Dedes, C.; Wyrowski, F.; Doty, S. D.; van der Tak, F.; and 59 co-authors incl. **Yıldız, U. A.**; *Hydrides in Young Stellar Objects: Radiation tracers in a protostar-disk-outflow system*; 2010, A&A, Vol. 521, L35 [ADS]

9. Wyrowski, F.; van der Tak, F.; Herpin, F.; Baudry, A.; Bontemps, S.; Chavarría, L.; Frieswijk, W.; Jacq, T.; Marseille, M.; Shipman, R.; van Dishoeck, E. F.; and 54 co-authors incl. **Yıldız, U. A.**; *Variations in H_2O^+/H_2O ratios toward massive star-forming regions*; 2010, A&A, Vol. 521, L34 [ADS]

8. Marseille, M. G.; van der Tak, F. F. S.; Herpin, F.; Wyrowski, F.; Chavarría, L.; Pietropaoli, B.; 65 co-authors incl. **Yıldız, U. A.**; *Water abundances in high-mass protostellar envelopes: Herschel observations with HIFI*; 2010, A&A, Vol. 521, L32 [ADS]

7. Sturm, B.; Bouwman, J.; Henning, Th.; Evans, N. J.; Acke, B.; Mulders, G. D.; Waters, L. B. F. M.; van Dishoeck, E.F.; Meeus, G.; Green, J. D.; Augereau, J. C.; Olofsson, J.; Salyk, C.; Najita, J.; and 29 co-authors incl. **Yıldız, U. A.**; *First results of the Herschel key program "Dust, Ice and Gas In Time" (DIGIT): Dust and gas spectroscopy of HD 100546*; 2010, A&A, Vol. 518, L129 [ADS]

6. van Kempen, T.A.; Green, J. D.; Evans, N. J.; van Dishoeck, E.F.; Kristensen, L.E.; Herczeg, G. J.; MerŠn, B.; Lee, J.-E.; Jørgensen, J.K.; Bouwman, J.; and 35 co-authors incl. **Yıldız, U. A.**; *Dust, Ice, and Gas In Time (DIGIT) Herschel program first results. A full PACS-SED scan of the gas line emission in protostar DK Chamaeleontis*; 2010, A&A, Vol. 518, L128 [ADS]

5. van Kempen, T.A.; Kristensen, L.E.; Herczeg, G. J.; Visser, R.; van Dishoeck, E.F.; Wampfler, S. F.; Bruderer, S.; Benz, A. O.; Doty, S. D.; Brinch, C.; Hogerheijde, M. R.; Jørgensen, J.K.; Tafalla, M.; Neufeld, D.; and 41 co-authors incl. **Yıldız, U. A.**; *Origin of the hot gas in low-mass protostars. Herschel-PACS spectroscopy of HH 46*; 2010, A&A, Vol. 518, L121 [ADS]

4. Nisini, B.; Benedettini, M.; Codella, C.; Giannini, T.; Liseau, R.; Neufeld, D.; Tafalla, M.; van Dishoeck, E.F.; and 47 co-authors incl. **Yıldız, U. A.**; *Water cooling of shocks in protostellar outflows. Herschel-PACS map of L1157*; 2010, A&A, Vol. 518, L120 [ADS]

3. van der Tak, F. F. S.; Marseille, M. G.; Herpin, F.; Wyrowski, F.; and 54 co-authors incl. **Yıldız, U. A.**; *Water abundance variations around high-mass protostars: HIFI observations of the DR21 region*; 2010, A&A, Vol. 518, L107 [ADS]

2. Fich, M.; Johnstone, D.; van Kempen, T.A.; McCoey, C.; Fuente, A.; Caselli, P.; Kristensen, L.E.; Plume, R.; Cernicharo, J.; Herczeg, G. J.; van Dishoeck, E.F.; Wampfler, S.; Gaufre, P.; Gill, J. J.; Javadi, H.; Justen, M.; Laauwen, W.; Luinge, W.; Ossenkopf, V.; Pearson, J.; and 41 co-authors incl. **Yıldız, U. A.**; *Herschel-PACS spectroscopy of the intermediate mass protostar NGC 7129 FIRS 2*; 2010, A&A, Vol. 518, L86 [ADS]

1. Toloba, E.; Boselli, A.; Gorgas, J.; Peletier, R.F.; Cenarro, A.J.; Gadotti, D.A.; Gil de Paz, A.; Pedraz, S.;, **Yıldız U.**; *Kinematic Properties as Probes of the Evolution of Dwarf Galaxies in the Virgo Cluster*; 2009, ApJ, Vol. 707, L17 [ADS]

For publication links, please follow ADS `http://bit.ly/adsumut`.

Papers in preparation

1. **Yıldız, Umut A.**; et al. *APEX-CHAMP$^+$ high-J CO observations of low–mass young stellar objects: IV. Survey of Low-mass Protostars*, To be submitted (Chapter 5 in this thesis).

Conference Proceedings & Abstracts

19. **Yıldız, Umut A.**; van Dishoeck, Ewine F.; Kristensen, Lars E.; *Star Formation with sub-/mm Astronomy - Milimetre/milimetre-alti Astronomisi ile Yıldız Oluşumu*; 18th Turkish National Astronomy Congress, Malatya, Turkey, Aug 27-31, 2012

18. **Yıldız, Umut A.**; Solmaz, Arif; Önal, Özgecan; Mirahmetoğlu, Halit; Saygaç, A. Talat; Güneş, Mikail; Yıldız, Mustafa K.; Özyar, Ümit F.; Şahin, Özge; Tuğral, M. Raşid; Atmaca, Gökhan; Kayhan, Cenk; Yeşilyaprak, Cahit; Dağtekin, Nazlı D.; Yaşar, Ekrem; Çoban, Mutlu; Canımkurbey, Betül; Öztürk, Pelin; Tokalı, Songül; Salman, Gonca; Zor, Hatice; Şensoy, Aslı; İnam, Sıtkı Ç.; Koçak, Fırat; Özdemir, Tuncay; Erdoğdu, Çağrı; Akı, Fatma Nur; Ekinci, Mustafa; Dönmez, Çağatay K.; Nasıroğlu, İlham; Aykutalp, Ayçin; Höçük, Seyit; Engin, M. Fatih; Aliş, Sinan; Yelkenci, Korhan; Yelkenci, Ayşegül T.; Özeren, Ferhat F.; Çabuk, Senem; Ataman, Erkan; Akkuş, Tuba; Tuncel, Efe; Bucakhan, Fehmi; Taşkın, Sevda; Öztürk, Fahri; Şahin, Timur; Baltacı, Neşever; Başpınar, Saniye; Uzunyayla, Pınar; Konak, Nermin D.; Etli, Özgür; Yılmaz, Figen; Dönmez, Orhan; Topal, Selçuk; Kalkan, Selami; Sonbaş, Eda; Küpçü-Yoldaş, Aybüke; *Journey of Turkish Membership to ESO - Turkiye'nin ESO'ya uyelik yolculuğu*; 18th Turkish National Astronomy Congress, Malatya, Turkey, Aug 27-31, 2012

17. **Yıldız, Umut A.**; Küçük, İbrahim; Öztürk, Fahri; Topal, Selçuk; Akgiray, Ahmed; Beklen, Elif; Gürkan-Uygun, Gülay; Ünal, Oktay; Ergin, Tülün; *Turkish National Radiotelescope Project - Ulusal Radyoteleskop Projesi*; 18th Turkish National Astronomy Congress, Malatya, Turkey, Aug 27-31, 2012

16. San José-García, I.; Mottram, J. C.; Kristensen, L. E.; van Dishoeck, E. F.; **Yıldız, U. A.** and the WISH team; *Studying the star-formation across the mass spectrum with Herschel-HIFI observations of CO*; Galactic Scale Star Formation, Heidelberg, 30 July-3 August 2012

15. San José-García, I.; Mottram, J. C.; Kristensen, L. E.; van Dishoeck, E. F.; **Yıldız, U. A.** and the WISH team; *Studying the star-formation across the mass spectrum with Herschel-HIFI observations of CO*; European Week of Astronomy and Space Science (EWASS), Symposium 2, Rome, -6 July 2012 [pdf]

14. Hogerheijde, Michiel R.; Bergin, Edwin A.; Brinch, Christian; Cleeves, L. Ilsedore; Fogel, Jeffrey K.J.; Blake, Geoffrey A.; Dominik, Carsten; Lis, Dariusz C.; Melnick, Gary; Neufeld, David; Panić, Olja; Pearson, John C.; Kristensen, Lars; **Yıldız, Umut A.**; van Dishoeck, Ewine F.; *Cold water and ammonia vapor in protoplanetary disks*; European Week of Astronomy and Space Science (EWASS), Symposium 2, Rome, -6 July 2012 [pdf]

13. **Yıldız, U.A.**; van Dishoeck, E.F.; Kristensen, L.E.; Ramchandani, J.; San José-García,I.; Mottram, J.C.; Jørgensen, J.K.; and the WISH Team; *High-J CO survey of low-mass protostars observed with Herschel-HIFI and LOMASS database*; From atoms to pebbles, Herschel's view of Star and Planet Formation Symposium held in Grenoble, France, March 20-23, 2012 [pdf]

12. Kristensen, L.E.; van Dishoeck, E.F.; Visser, R.; Mottram, J.C.; Herczeg, G.J.; Jørgensen, J.K.; Bruderer, S.; Harsono, D.; Hogerheijde, M.R.; Karska, A.; San José-García,I.; Wampfler, S.; **Yıldız U.A.**; and the WISH team; *Feedback from low-mass protostars onto their surroundings: some like it hot*; From atoms to pebbles, Herschel's view of Star and Planet Formation Symposium held in Grenoble, France, March 20-23, 2012 [ADS]

11. Hogerheijde, Michiel R.; Bergin, Edwin A.; Brinch, Christian; Cleeves, L. Ilsedore; Fogel, Jeffrey K.J.; Blake, Geoffrey A.; Dominik, Carsten; Lis, Dariusz C.; Melnick, Gary; Neufeld, David; Panić, Olja; Pearson, John C.; Kristensen, Lars; **Yıldız, Umut A.**; van Dishoeck, Ewine F.; *Herschel observations of cold water vapor and ammonia in protoplanetary disks*; From atoms to pebbles, Herschel's view of Star and Planet Formation Symposium held in Grenoble, France, March 20-23, 2012 [ADS]

10. Hogerheijde, Michiel R.; Bergin, Edwin A.; Brinch, Christian; Cleeves, L. Ilsedore; Fogel, Jeffrey K.J.; Blake, Geoffrey A.; Dominik, Carsten; Lis, Dariusz C.; Melnick, Gary; Neufeld, David; Panić, Olja; Pearson, John C.; Kristensen, Lars; **Yıldız, Umut A.**; van Dishoeck, Ewine F.; *Detecting cold water vapor in a planet-forming disk*; Star Formation through Spectroimaging at High Angular Resolution Workshop, Taipei, Taiwan, June 20-24, 2011 [pdf]

9. **Yıldız, U.A.**; Kristensen, L.E.; van Dishoeck, E.F.; Jørgensen, J.K.; Visser, R.; San José-García,I.; Herschel WISH Team *High-J CO survey of low-mass protostars observed with Herschel-HIFI*; The Molecular Universe, Proceedings of the 280th Symposium of the International Astronomical Union held in Toledo, Spain, May 30-June 3, 2011, $^{\#}$388 [ADS]

8. San José-García,I.; Kristensen, L.E.; **Yıldız, U.A.**; van Dishoeck, E.F.; Herschel WISH Team; *Linking high-J CO emission from low- to high-mass protostars with Herschel-HIFI*; The Molecular Universe, Proceedings of the 280th Symposium of the International Astronomical Union held in Toledo, Spain, May 30-June 3, 2011, $^{\#}$326 [ADS]

7. Herczeg, G. J.; Karska, A.; Kristensen, L. E.; van Dishoeck, E. F.; Visser, R.; Jorgensen, J.; Bruderer, S.; **Yıldız, U.**; Herschel Wish Team; *Warm water in Herschel/PACS observations of NGC 1333 IRAS 4B: the outflow, not the disk!*; "The Molecular Universe, Proceedings of the 280th Symposium of the International Astronomical Union held in Toledo, Spain", May 30-June 3, 2011, #195 [ADS]

6. Hogerheijde, M.; Bergin, E. A.; Brinch, C.; Cleeves, L.; Fogel, J.; Blake, G.; Cernicharo, J.; Dominik, C.; Lis, D. C.; Melnick, G.; Neufeld, D.; Panic, O.; Pearson, J.; Kristensen, L.; **Yıldız, U.**; van Dishoeck, E.; *Detecting the cold water reservoir in a protoplanetary disk*; "The Molecular Universe, Proceedings of the 280th Symposium of the International Astronomical Union held in Toledo, Spain", May 30-June 3, 2011, #16 [ADS]

5. Kristensen, L. E.; van Dishoeck, E.; **Yıldız, U.**; Visser, R.; Herczeg, G.; Jorgensen, J.; van Kempen, T.; Hogerheijde, M.; WISH Team; *WISHes coming true: low-mass protostars as chemical fountains*; "The Molecular Universe, Proceedings of the 280th Symposium of the International Astronomical Union held in Toledo, Spain", May 30-June 3, 2011, #10 [ADS]

4. **Yıldız, U.**; van Dishoeck, E. F.; Kristensen, L. E.; Visser, R.; Herczeg, G.; van Kempen, T. A.; Jørgensen, J. K.; Hogerheijde, M. R.; Wish Team; *"Energetic processes revealed by spectrally resolved high-J CO lines in low-mass star-forming regions with Herschel-HIFI"*, 2011, Zermatt 5th ISM Symposium "Conditions and impact of star formation: New results with Herschel and beyond", September 19-24, 2010 [ADS]

3. Kristensen, L. E.; Visser, R.; van Dishoeck, E. F.; **Yıldız, U.**; Herczeg, G. J.; Doty, S.; Jørgensen, J. K.; van Kempen, T. A.; Brinch, C.; Wampfler, S.; Bruderer, S.; Benz, A. O.; *Wishes Coming True: Water in low-mass star-forming regions with Herschel*; 2011, Proceedings of 5th Zermatt ISM Symposium "Conditions and impact of star formation: New results with Herschel and beyond", September 19-24, 2010 [ADS]

2. Wampfler, S. F.; Herczeg, G. J.; Bruderer, S.; Benz, A. O.; van Dishoeck, E. F.; Kristensen, L. E.; van Kempen, T. A.; Doty, S. D.; Visser, R.; **Yıldız, U.**; and the WISH Team; *"Probing the Water Chemistry in Young Stellar Objects with Hydroxyl Observations'*, 2011, Zermatt 5th ISM Symposium "Conditions and impact of star formation: New results with Herschel and beyond", September 19-24, 2010 [pdf]

1. **Yıldız, U.**; van Dishoeck, E. F.; Kristensen, L. E.; van Kempen, T. A.; Belloche, A.; Guesten, R.; *The shocking truth about star formation as revealed by warm CO CHAMP+ Mapping*; 64th Nederlandse Astronomen Conferentie (NAC) held in Rolduc, Kerkrade, May 13-15, 2009 [pdf]

Popular Articles

2. Efe Tuncel, **Umut A. Yıldız**, *APEX Telescope: First Precursor to ALMA, (APEX Teleskobu: ALMA'nın ilk Öncüsü) in Turkish*, Tübitak Bilim ve Teknik Dergisi, Aralık 2012, Sayı: 541, Sayfa: 38-42

1. **Umut A. Yıldız**, *Science with ALMA, (ALMA ile Bilim) in Turkish*, Tübitak Bilim ve Teknik Dergisi, Ekim 2011, Sayı: 527, Sayfa: 30-35 [pdf]

Curriculum Vitae

I was born in February 28, 1980 in Istanbul, Turkey, however, my parents' hometown is Ordu. My father was a chief-policeman, therefore I have lived in many cities and attended many different schools within Turkey; İstanbul, Bingöl, Karabük, Zonguldak, then Çanakkale where I have gotten my high school diploma from Çanakkale Milli Piyango Anatolian High School in 1998.

Then, I found the opportunity to follow my life ambition to become an astronomer and won the nationwide university entrance examination to study at the Ankara University, Department of Astronomy and Space Sciences. I was quite active in my early years, including being the president of the Amateur Astronomy Club (ASART) of Ankara University. At the end of the first semester of my third year, I decided to improve my English and found myself at the London Heathrow Airport, 10 days later. My plan was to stay there for the next semester and summer –6-7 months–, but after the summer, I decided to apply to British universities to study astronomy. In September 2001, I was accepted by University College London for an astronomy diploma program. One year after, I decided to go back to Turkey because a degree from a UK university is very expensive and my old university was a lot cheaper. After two years of UK experience, I went back to Ankara University. Reregistering to the university was quite painful, because many of the second year classes were either abolished or the lecture code had changed. I was by now a fifth year student but finished only the first year lectures. However, I was quite motivated to finish my university, so I took as many courses as possible. In my sixth (final) year, I passed 24 lectures which is probably still a record at the Faculty of Science, and also finished a Minor in Mathematics and become within the top 5% of the peer students. If I could have taken three more lectures, I would have finished a Physics Minor as well, but I simply did not have time.

In September 2005, I started my Masters study at the University of Groningen, Kapteyn Astronomical Institute. I studied within the *Stellar Populations Group* led by Reynier F. Peletier, who is now the director of the Kapteyn Institute. The project was based on the data from MAGPOP-ITP *(Multiwavelength Analysis of Galaxy Populations - International Time Programme)* training network, which is funded by the European Union with the Kapteyn Institute as the Associated-Node. I joined the group in February 2007 to work on the project called "Stellar Populations of Dwarf Galaxies: Optical and Near-IR Surface Photometry of Quiescent Dwarf Galaxies". We obtained H & K band near-IR images of 55 dwarf galaxies by using the William Herschel Telescope (WHT), Telescopio Nazionale Galileo (TNG), and the Nordic Optical Telescope (NOT) at La Palma, Canary Islands in 13 nights. During my research, I have reduced and calibrated the images to study the surface photometry of each dwarf galaxy. Close to the completion of the project, I was

fortunate to receive a 3-months research fellowship from the MAGPOP project in order to continue my activities in the IAC *(Instituto de Astrofisica de Canarias)*, Tenerife. I guess the life in Tenerife matured me and prepared me for the future. The experience from this research led me to find another great project with more substantial data from *Herschel* Space Observatory.

In December 2008, I was accepted to the Ph.D. position at Leiden University, Leiden Observatory, in the *Molecular Astrophysics Group* led by Prof. Dr. Ewine van Dishoeck in order to work with the WISH (Water In Star-forming regions with *Herschel*) guaranteed-time key program to conduct research on star formation. Delays of the launch of *Herschel* and a cosmic ray hit to the HIFI instrument six month after launch, led me to study some ground-based APEX and JCMT observations and better prepare for *Herschel* data, which started to pour down in March 2010. I was very lucky to participate in three large *Herschel* consortiums (WISH, HOP, DIGIT), which gave me the opportunity to collaborate with more than 100 great astronomers. Key discoveries of our teams include the first detection of water and oxygen molecules in prestellar cores and protostellar disks. I also had the opportunity to have hands-on experience with sub-/mm observations via several observing trips to APEX (Chile), JCMT (Hawaii), and IRAM 30m (Spain). During my thesis research, I really enjoyed working on large-scale observational data. Particularly, I also got a chance to participate in the *Herschel*-HIFI calibration group in SRON-Groningen, which also added another direction for my future to join future instrumentation projects.

What next? Well, since childhood, I lived and traveled in many different cities in many different countries. Therefore I am not attached to one specific city, but I am only interested in great projects that I can contribute to and work. The plan is to continue to pursue a career in astronomical research and instrumentation. I will continue in Pasadena, California, (USA) as a postdoctoral researcher at the NASA Jet Propulsion Laboratory and California Institute of Technology with Prof. Dr. Paul Goldsmith.

So, who is Umut A.?

OK, it is still me. In my legal documents, I do not have a middle name. But since Yıldız is a very common surname in Turkey and even there are more than 500 Umut Yıldız on Facebook, I decided to create a bogus middle name —actually just a letter— **A.**, in order reduce the chances for having the same name and surname in astronomical papers. Even though sometimes I forget to add A., I am always trying to use this letter in every of my scientific papers. If you wonder what A. stands for, well, I have not decided yet, but it fits with **A**stronomy, right (what a geek) :).

Acknowledgments

These last pages mark the end of my 4+ years in Leiden. I would like to thank all the people that I have shared memories with at the Leiden Observatory during my Ph.D. I have to admit that Leiden Observatory is not only a great place for research but also an *amazing palace of style and excellence*. Specifically, the Leiden Astrochemistry Group is probably leading one of the best research among many groups in the world.

I am grateful to all the members of the WISH (Water In Star-forming regions with *Herschel*), DIGIT (Dust, Ice and Gas In Time) and HOP (*Herschel* Oxygen Project) teams. Being a member of those large and successful teams taught me the importance of collaboration and the idea of "*consensus*" instead of "*competition*" approach as another great way to win–win.

Even though I am not allowed to pronounce his name here, my very special thanks begins to "the Danish guy" (LEK), who acted as my mentor and the only person who somehow has the ability to calm me down with patience anytime. You were the magic touch for many obstacles that I have had and I learned a lot of things from you that I will apply in my life. Things would be very different without your presence. My wonderful officemates, starting from the current ones; Thanja Lamberts whom we talk about the system around the world, Ricardo Herbonnet, and Joe Mottram. And my former officemates, thanks to Isa Oliveira for advocating me from usual suspects, Herma Cuppen and Emily Tenenbaum for being our big sisters. Moving in the corridor, gracias a Irene San José García for all the fun and sharing daily moods and chocolates; Daniel Harsono, the Python guy, thanks for all the help; Edith Fayolle, the Parisian lady; Nienke van der Marel, the only Dutch in the group; Kalle Torstensson, the great photo hunter; and Karoliina Isokoski, thanks for the cover idea. I am also greatly indebted to those who keep the Observatory running smoothly, the computer people, Erik, David, Niels, and Aart; and the secretaries, Kirsten, Jacqueline, Jeanne, Anita, and Liesbeth. Even though it is 672 km away from us, our Garching group is always very close to us via our weekly Leiden-MPE videocons. Agata Karska, the fellow WISH PhD student in Garching, and the postdocs Simon Bruderer, Greg Herczeg, Davide Fedele, thanks for sharing many memories during many videocons and meetings.

Thanks to our large *ESO Turkiye* team, where we worked (still working) hard for initiating conversations for Turkish membership to ESO. Our group is very large, therefore I cannot write all the names here but I have to mention a few key people with whom I have shared a lot. Thanks to Arif Solmaz, Özgecan Önal, and Halit Mirahmetoğlu, and the entire team for helping me to deal with many obstacles that we experienced in the process. Also very special thanks to Mrs. de Zeeuw for helping me to initiate conversations with the ESO DG.

I really enjoyed my time in SRON-Groningen, where we worked hard at the *Herschel*-HIFI Performance Verification process in order to test and verify that the instrument is working well. That was very much "fingers crossed" times in fall 2009 when we were really looking forward to see HIFI up and running after the cosmic ray hit event happened a few months back. I spent great times and shared a lot of experience with the peer HIFI-ICC trainees, Tom Bell, Per Bjerkeli, Elvire De Beck, Nathan Crockett, Mihkel Kama, Robin Lombaert, Massimo de Luca, Zoltan Makai, Zsofia Nagy, Susana Pacheco, Matthijs van der Wiel, and Shiya Wang. Thanks to all HIFI calibration staff members, specifically Ronan Higgins, Russell Shipman, David Teyssier, Carolyn M^{c}Coey, Ian Avruch, Michael Olberg, Peter Roelfsema, Volker Ossenkopf, Frank Helmich, Fabrice Herpin, Pat Morris, Meltem Akyılmaz, Christophe Risacher, Bertrand Delforge, and Femke Flederus.

Other Turkish astronomers in Groningen that I shared quite a lot memories with all the fruitful discussions my brother Seyit Höçük, my sisters Esra Tigrak, and Ayçin Aykutalp are much appreciated.

Of course, family is the most important thing in the world. I am very much indepted to my wife, Fatime for all the support during my Ph.D. She is very patient for all the times and with me. Almost at the same hour of the approval of my thesis, a new protoyıldız turned to a yıldız (in case you don't know yet, "Yıldız" means "Star" in Turkish). Duru Lara welcome to the world!

My mother Emine, father Enis, and sister Burcu, this is for you. Anne ve baba, sizlerin desteğiniz olmasaydı nereye kadar gidebilirdim kim bilir. Yıllardır neredeyse hayatımın yarısını sizlerden uzaklarda geçirmiş olsam da her zaman sizin sesinizi duymak ve manevi olarak yanımda hissetmek bana güç verdi ve bugünlere ulaşmamı sağladı. Burcu, biliyorum ki ben yurtdışında olduğumda en çok sen yanlız kaldın ve uzakta bir abim var dedin. Sizlere sabrınız ve desteğiniz için çok teşekkür ediyor ve öpücükler gönderiyorum.

My family-in-law Adnan and Yıldız Aydoğmuşlu, and sisters-in-law, Figen and Sibel, this is for you. Çok kısa bir süre içerisinde beni de aranızda kabul edip benim Hollanda'daki ailem oldunuz. Sizlerin de yanımızda olmanız, sabrınız ve desteğiniz için çok teşekkür ederim.

Finally, thanks to all the people that I may forget to mention their names here.

“ - Knowledge is to understand.
- To understand who you are
- If you not know who you are
- What’s the use of learning?”

– Yunus Emre (ca.1238-ca.1320) - Turkish Scholar


CO
al
et
IRAS
lines
observations
C18O
13CO
12CO
van
envelope
outflow
sources
line
de
data
observed
O2
km
Class
abundance
JCMT
HIFI
Herschel
temperature
emission
APEX
APEX-CHAMP+
Herschel-HIFI
transitions
density
Dishoeck
low-mass
Jørgensen
JCMT-RxA
model
formation
mass
cloud
value
regions
see
densities
also
Observatory
Observed
physical
lower
heating
high
GHz
map
intensity
NGC
WISH
red
4A
maps
Table
molecular
en
time
Fig
blue
low
spectra
Blue
components
ratios
calculated
een
het
resolution
UV
structure
ve
2A
ApJ
protostars
broad
Red
AU
Kempen
FCO
higher
high-J
whereas
different
order
Yıldız
results
used
rms
toward
positions
Netherlands
Chapter
radius
excitation
show
Space
models
narrow
protostar
respectively
protostellar
parameters
ile
rotational
e.g
column
dust
source
taken
spectrum
shown
profile
force
factor
4B
obtained
Telescope
te
cm
position
presented
values
Kristensen
integrated
H2O
range
shows
using
evolution
intensities
gas
beam
inner
H2
two
Figure
velocity
profiles
outflows
temperatures
well
found
JCMT-HARPB
fit
component