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Extrasolar planet detection through spatially resolved observations

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PUBLICATIONS

1. *Optimized Principal Component Analysis on Coronagraphic Images of the Fomalhaut System*
T. Meshkat, M. A. Kenworthy, S. P. Quanz, and A. Amara
2014, *ApJ*, 780, 17.
2. *Searching for Planets in Holey Debris Disks with the Apodizing Phase Plate*
T. Meshkat, V. P. Bailey, K. Y. L. Su, M. A. Kenworthy, E. E. Mamajek,
P. M. Hinz, and P. S. Smith
2015, *ApJ*, 800, 5.
3. *Further Evidence of the Planetary Nature of HD 95086 b from Gemini/NICI H-band Data*
T. Meshkat, V. Bailey, J. Rameau, M. Bonnefoy, A. Boccaletti, E. E. Mamajek, M. Kenworthy, G. Chauvin, A.-M. Lagrange, K. Y. L. Su, and T. Currie
2013, *ApJL*, 775, 40.
4. *Discovery of a Low-Mass Companion to the F7V star HD 984*
T. Meshkat, M. Bonnefoy, E. E. Mamajek, S. P. Quanz, G. Chauvin, M. A. Kenworthy, J. Rameau, M. R. Meyer, A.-M. Lagrange, J. Lannier, and P. Delorme
2015, *MNRAS*, submitted.
5. *Searching for gas giant planets on Solar System scales - A NACO/APP L'-band survey of A- and F-type Main Sequence stars*
T. Meshkat, M. A. Kenworthy, M. Reggiani, S. P. Quanz, E. E. Mamajek, and M. R. Meyer
2015, *MNRAS*, submitted.
6. *HD 106906 b: A Planetary-mass Companion Outside a Massive Debris Disk*

V. Bailey, **T. Meshkat** et al.
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7. *Confirmation of the Planet around HD 95086 by Direct Imaging.*

J. Rameau, G. Chauvin, A.-M. Lagrange, **T. Meshkat** et al.
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8. *Discovery of a Probable 4–5 Jupiter-mass Exoplanet to HD 95086 by Direct-imaging.*

J. Rameau, G. Chauvin, A.-M. Lagrange, A. Boccaletti, S. P. Quanz, M. Bonnefoy, J. H. Girard, P. Delorme, S. Desidera, H. Klahr, C. Mordasini, C. Dumas, M. Bonavita, **T. Meshkat**, V. Bailey, M. Kenworthy.
2013, ApJL, 772, 15.

9. *Coronagraphic Observations of Fomalhaut at Solar System Scales.*

M. A. Kenworthy, **T. Meshkat**, S. P. Quanz, J. H. Girard, M. R. Meyer, M. Kasper.
2013, ApJ, 764, 7.

Proceedings

1. *Testing Optimized Principal Component on Coronagraphic Images of the Fomalhaut System.*

T. Meshkat, M. A. Kenworthy, S. P. Quanz, A. Amara.
2014, IAU Symposium Proceedings, Volume 299, 56-57.

2. *Successes and challenges of the APP Coronagraph.*

M. A. Kenworthy, S. P. Quanz, G. Otten, **T. Meshkat**, J. Codona, F. Snik, M. E. Meyer, M. Kasper.
2014, IAU Symposium Proceedings, Volume 299, 40-41.

CURRICULUM VITAE

I was born on October 7th, 1987 in Mountain View, California, USA. I grew up in San Jose, California, the heart of Silicon Valley, where I attended elementary, middle, and high school. I was particularly inspired to pursue a career in science after watching Carl Sagan's Cosmos tv series, and thus focused on taking many science classes in school. I attended the COSMOS summer school for mathematics and science at the University of California, Santa Cruz. I graduated from Leland High School in 2005.

I attended the University of California, Los Angeles (UCLA), first as a Math major but eventually switched to Astrophysics. I completed two summer programs (Research Experience for Undergraduates: REU) in Math at UCLA and Astrophysics at the National Optical Astronomical Observatory (NOAO) in Tucson, Arizona. During my undergraduate degree, my main research project was with Professor Stanimir Metchev, searching for brown dwarf companions in images from the Lick Observatory. I also worked on a project with Professor Bradley Hansen on modeling a recently discovered exoplanetary system. I graduated with a Bachelors in Science in Astrophysics in 2009, with Highest Departmental Honors, Cum Laude, UCLA College Honors, the Deans Honor List, and the Geoffrey Hilton Award for Excellence in Astronomy.

I then moved to the Netherlands, where I completed my Masters of Science degree in Astronomy at Leiden University in 2011. My Masters minor project was with Dr. Bernhard Brandl studying the far-infrared/radio correlation in the Antennae galaxies. My masters major project was with Professor Ignas Snellen, re-analyzing the methane detection in the atmosphere of the extrasolar planet HD 189733b. I began my PhD work under the supervision of Dr. Matthew Kenworthy in the Fall of 2011. My thesis work has focused on optimizing the algorithms and observations for the direct detection of extrasolar planets. During my PhD, I presented my work at international conferences in the Netherlands, France, Germany, the United Kingdom, Canada, and the United States.

In the Fall of 2015, I will begin my postdoctoral fellowship at the Jet Propulsion Laboratory (JPL) and California Institute of Technology (Caltech) in Pasadena, California. I will continue my research searching for planets in other solar systems by developing new techniques and working with new telescopes and instruments.

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I began my journey into the study of astrophysics at UCLA, where I made close friends that will last a lifetime. Marissa, Maggie, Seth, Micha, James, Paul, David (VB), Krystal, Ryan, thank you for the all the amazing memories. Without our study groups, physics bingo, and lunch time trips to BJs restaurant with double alfredo sauce, I don't know how I would have survived. I am so grateful that we have maintained a close friendship, even as I have been so far away for nearly 6 years. I can't wait to see you all soon.

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great friend and you always make sure everyone is laughing. Olga, thank you for always being a source of happiness and fun!

I have made so many great friends at the Leiden Observatory it is almost impossible to name everyone. Alex South, you are a wonderfully kind and close friend, I'm so grateful to have met you. Monica, it's been amazing to go through this PhD process with you, through all the crazy stressful moments, you've been there to support and make me laugh. I've really enjoyed dinner and movie nights with you and Bernard, I wish you all the best on the East coast, you will be missed! Allison, I feel like I've known you for years! Thank you for always being there to get a coffee and laugh about everything with me. And Alex West, you're so much fun and I'm so glad I've gotten to know you! I will miss you both so much! Mason, even when I met you back when we were both Masters students, I knew we would be close friends. I'm glad you chose to stay in Leiden for your PhD so we were able to become better friends. Mattia, you've been a great friend for all these years even before I started my PhD. Thank you for all the support and the great conversations over lunch and coffee. I'm so excited for you and Anna's new adventure in NYC! Matteo, you were one of the first PhDs I met at the Sterrewacht and we've been close ever since. Thank you for mentoring me during my Masters research project. Jayne, thank you for hosting me in Boston and for all your help during my postdoc application process! I couldn't have gotten a position without all your helpful suggestions. Maria, you are an amazing colleague and even better friend. I'm honored to have been your paranymph.

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