MICHAEL BOTTOM

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EDUCATION

California Institute of Technology Oct. 2010 - May 2016
Pasadena, CA
PhD, Astrophysics (advisors Shri Kulkarni, John Johnson)

Columbia University
New York, NY Sept. 2004 - May 2008
BA, Physics (GPA 3.8/4.0)
BA, Mathematics (GPA 3.9/4.0)

EMPLOYMENT HISTORY

Jet Propulsion Lab, NASA Aug 2016-present
Optical Engineer *Pasadena, CA*

California Institute of Technology Oct. 2010 - May 2016
Graduate Student *Pasadena, CA*

Columbia Astrophysics Lab Oct. 2004-May 2008, June 2009-July 2010
Research Assistant *New York, NY*

T3 Capital Management, LLC May 2008-May 2009
Equity Trader *New York, NY*

RESEARCH INTERESTS

Instrumentation for exoplanet discovery, particularly high contrast imaging, adaptive optics systems, high-resolution spectroscopy, robotic telescopes. Optical physics, image analysis, novel data analysis techniques inspired by computer vision and machine learning.

AWARDS AND HONORS

NASA Voyager award for individual achievement (2018)

NASA Group Achievement Award, WFIRST coronagraph technology development team (2018)

NASA Voyager award for individual achievement (2017)

NASA Group Achievement Award, Exoplanet laser frequency comb team (2017)

Rodger Doxsey Travel Prize honorable mention, American Astronomical Society (2015)

NASA Space Technology Research Fellowship (2013-2016)

Golden Key International Honor Society (2008, declined)

Dean's List, Columbia University (2004-2008)

PROFESSIONAL SERVICE

Reviewer for *PASP* and *Optical Engineering* (2015-present)

Session Chair, SPIE Astronomical Telescopes and Instrumentation Meeting (2017)

NASA review panel member (2016)

Caltech Astronomy graduate admissions committee (2013)

Caltech Astronomy Outreach team (2010-2016)

TECHNICAL SKILLS

Hardware	Optical and infrared systems, electronics, optomechanics, fiber optics
Programming	Python, C, C++, IDL, Matlab; Labview, Zemax
Observing	Palomar 200" (>25 nights, 15 PI), Keck (>10, 1 PI), IRTF (>20, non-PI)
Analysis	Statistical modeling, numerical simulations, scientific computing

SELECTED PUBLICATIONS

- **Bottom, M.**, J. K. Wallace, R. Bartos, J. C. Shelton, E. Serabyn. "Speckle suppression and companion detection using coherent differential imaging." *Monthly Notices of the Royal Astronomical Society*, 464, 2937 (2017)
- Dimitri Mawet, Elodie Choquet, Olivier Absil, Elsa Huby, **Michael Bottom** et al. "Characterization of the inner disk around HD 141569 A from Keck/NIRC2 L-band vortex coronagraphy." *The Astronomical Journal*, 153, 44 (2017)
- **Bottom, Michael**, J. Chris Shelton, James K. Wallace, Randall Bartos, et al. "Stellar Double Coronagraph: a multistage coronagraphic platform at Palomar observatory". *Publications of the Astronomical Society of the Pacific*, accepted.
- Yi, Xu, Kerry Vahala, Scott Diddams et al. "Demonstration of a Near-IR Laser Comb for Precision Radial Velocity Measurements in Astronomy". *Nature Communications*, 7, 10436 (27 Jan 2016)
- Mawet, Dimitri, Trevor David, **Michael Bottom** et al. "Discovery of a Low-Mass Companion Around HR 3549" *The Astrophysical Journal*, 811, 103 (2015 Oct 1)
- Jensen-Clem, Rebecca, Philip S. Muirhead, **Michael Bottom** et al. "Attaining a Doppler precision of 10 cm s^{-1} with a lock-in amplified spectrometer." *Publications of the Astronomical Society of the Pacific*, 127, 957 (Nov 2015)
- **Bottom, Michael**, Jonas Kuhn, Bertrand Mennesson et al. "Resolving the delta Andromedae spectroscopic binary with direct imaging". *The Astrophysical Journal*, 809, 11 (June 2015)
- Swift, Jonathan J., **Michael Bottom**, John A. Johnson et al. "Miniature Exoplanet Radial Velocity Array (MINERVA) I. Design, Commissioning, and First Science Results." *Journal of Astronomical Telescopes, Instruments, and Systems*, Volume 1, Issue 2 (21 April 2015)
- Pineda, J. Sebastian, **Michael Bottom**, and John A. Johnson. "Using High-Resolution Optical Spectra to Measure Intrinsic Properties of Low-Mass Stars: New Properties for KOI-314 and GJ 3470." *The Astrophysical Journal* 767, no. 1 (2013): 28.
- **Bottom, Michael**, Philip S. Muirhead, John Asher Johnson, and Cullen H. Blake. "Optimizing Doppler Surveys for Planet Yield." Publications of the Astronomical Society of the Pacific 125, no. 925 (2013): 240-251.

PROFESSIONAL REFERENCES

Shri Kulkarni	Professor, Caltech	srk@astro.caltech.edu	626 395 3734
John Johnson	Professor, Harvard	jjohnson@cfa.harvard.edu	617 496 9820
Dimitri Mawet	Associate Professor, Caltech	dmawet@astro.caltech.edu	626 395 1452
Eugene Serabyn	Senior Research Scientist, JPL	Eugene.Serabyn@jpl.nasa.gov	818 393 5243