Dr. Timothy A. Cook
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Education

Ph. D. Astrophysics, 1991	University of Colorado
B. A. Physics, 1985	Johns Hopkins University

Ph. D. Thesis "Far Ultraviolet Spectrophotometry of Hot Stars and Calibration Standards in the FUV" *Webster Cash, Advisor*

Positions

January 2012 to present	Assistant Professor in the Department of Physics Center for Atmospheric Research University of Massachusetts - Lowell
January 2012 to present	Adjunct Research Associate Professor in the Department of Astronomy Center for Space Physics Boston University
May 2005 to January 2012	Research Associate Professor in the Department of Astronomy Center for Space Physics Boston University
Sept 2008 to December 2008	Lecturer Dept of Astronomy Boston University
January 1996 to April 2005	Research Assistant Professor of Astronomy and Space Physics Center for Space Physics Boston University
August 1992 to December 1995	Research Associate Center for Space Physics Boston University
Sept 1994 to December 1994	Lecturer Dept of Astronomy Boston University
November 1991 to July 1992	Post-Doctoral Research Assistant Space Sciences Laboratory, University of California, Berkeley

Research

- Principal Investigator for the IMAGER sounding rocket mission to image M101 and determine the variation of astrophysical dust properties with metallicity and radiation field.
- Principal Investigator for the MANIC program to develop a monolithic nulling interferometer suitable for directly imaging extrasolar planets.
- Program Scientist for the PICTURE sounding rocket mission to directly image the ϵ Eri b (the planet orbiting ϵ Eri)
- Instrument Scientist for the SPIDR (SmEx) satellite to spectrally image the intergalactic medium.

- Project Manager for the TERRIERS (STEDI) satellite to tomographically image the ionosphere.
- Designed, constructed, calibrated and flew the SPINR spectral imaging system, including spectrograph and novel data reduction strategy, to record hyperspectral images of astrophysical targets.
- Participated in fifteen sounding rocket missions, including two missions launched from Woomera, Australia to obtain far ultraviolet spectra of supernova 1987A, and over ten from White Sands Missile Range to study comets, stellar spectrophotometry, the interstellar medium, and reflection nebulae.
- Designed, constructed, and brought into operation the Boston University vacuum calibration facility, including four vacuum systems, ultraviolet and soft xray light sources, vacuum monochromators, computer control and data acquisition systems, and computer controlled vacuum manipulators.
- Designed, constructed, and am bringing into operation the UMass - Lowell vacuum calibration facility, including a high contract testbed, two vacuum systems, ultraviolet and soft xray light sources, vacuum monochromators, computer control and data acquisition systems, and computer controlled vacuum manipulators.

Affiliations American Astronomical Society

Publications

Refereed

[1] E. S. Douglas, J. Martel, Z. Li, G. Howe, K. Hewawasam, R. A. Marshall, C. L. Schaaf, T. A. Cook, G. J. Newnham, A. Strahler, and S. Chakrabarti. Finding Leaves in the Forest: The Dual-Wavelength Echidna Lidar. *IEEE Geoscience and Remote Sensing Letters*, 12:776–780, April 2015.

[2] Brian A. Hicks, Supriya Chakrabarti, and Timothy A. Cook. Interferometric nulling limits with tip-tilt-piston deformable mirrors and a pinhole spatial filter array. *Journal of Astronomical Telescopes, Instruments, and Systems*, 1(1):019001, 2014.

[3] D. Pallamraju, J. Baumgardner, R. P. Singh, F. I. Laskar, C. Mendillo, T. Cook, S. Lockwood, R. Narayanan, T. K. Pant, and S. Chakrabarti. Daytime wave characteristics in the mesosphere lower thermosphere region: Results from the Balloon-borne Investigations of Regional-atmospheric Dynamics experiment. *Journal of Geophysical Research (Space Physics)*, 119:2229–2242, March 2014.

[4] T. Cook. Anamorphic integral field spectrometer for diffuse ultraviolet astronomy. Ap. Opt., 52:8765, December 2013.

[5] B. A. Hicks, M. E. Danowski, J. F. Martel, and T. A. Cook. High etendue UV camera for simultaneous four-color imaging on a single detector. Ap. Opt., 52:5194, July 2013.

[6] C. B. Mendillo, S. Chakrabarti, T. A. Cook, B. A. Hicks, and B. F. Lane. Flight demonstration of a milliarcsecond pointing system for direct exoplanet imaging. Ap. Opt., 51:7069, October 2012.

[7] S. Chakrabarti, O.-P. Jokiaho, J. Baumgardner, T. Cook, J. Martel, and M. Galand. High-throughput and multislit imaging spectrograph for extended sources. *Optical Engineering*, 51(1):013003, January 2012.

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[9] B Hicks, T Cook, B Lane, and S Chakrabarti. Opd measurement and dispersion reduction in a monolithic interferometer. *Opt. Express*, 18(16):17542–17547, 2010.

[10] B. Hicks, T. Cook, B. Lane, and S. Chakrabarti. Monolithic achromatic nulling interference coronagraph: design and performance. Ap. Opt., 48:4963–+, September 2009.

[11] T. A. Cook, B. A. Hicks, P. G. Jung, and S. Chakrabarti. Far-ultraviolet astronomical narrowband imaging. Ap. Opt., 48:1936–+, March 2009.

[12] N. K. Lewis, T. A. Cook, K. P. Wilton, S. Chakrabarti, K. France, and K. D. Gordon. Far-Ultraviolet Dust Albedo Measurements in the Upper Scorpius Cloud Using the Spinr Sounding Rocket Experiment. Ap.J., 706:306–318, November 2009.

[13] N. K. Lewis, T. A. Cook, and S. Chakrabarti. A Study of Far-Ultraviolet Extinction in the Upper Scorpius Cloud Using the SPINR Sounding Rocket Experiment. Ap.J., 619:357–367, January 2005.

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[15] T. A. Cook, V. J. Gsell, J. Golub, and S. Chakrabarti. SPINR-A Wide-Field Ultraviolet Spectral Imaging System. Ap.J., 585:1177–1190, March 2003.

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[18] S. Chakrabarti, T. A. Cook, F. Kamalabadi, D. M. Cotton, V. Taylor, S. Godlin, and J. S. Vickers. Instrumentation and Techniques for Diffuse/Multi-Object Ultraviolet Spectroscopy. In J. A. Morse, J. M. Shull, & A. L. Kinney, editor, *Ultraviolet-Optical Space Astronomy Beyond HST*, volume 164 of *Astronomical Society of the Pacific Conference Series*, pages 322–+, 1999.

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[5] C. B. Mendillo, B. A. Hicks, T. A. Cook, T. G. Bifano, D. A. Content, B. F. Lane, B. M. Levine, D. Rabin, S. R. Rao, R. Samuele, E. Schmidtlin, M. Shao, J. K. Wallace, and S. Chakrabarti. PICTURE: a sounding rocket experiment for direct imaging of an extrasolar planetary environment. In *Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series*, volume 8442, September 2012.

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Presentations

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[2] E. S. Douglas, C. B. Mendillo, B. Hicks, T. Cook, J. Martel, S. Finn, R. S. Polidan, and S. Chakrabarti. Status of the PICTURE Sounding Rocket to Image the Epsilon Eridani Circumstellar Environment. In *American Astronomical Society Meeting Abstracts*, volume 224 of *American Astronomical Society Meeting Abstracts*, page 122.10, June 2014.

[3] C. B. Mendillo, E. S. Douglas, S. C. Finn, B. Hicks, J. Martel, T. Cook, and S. Chakrabarti. Recent Contrast Measurements Made Using the PICTURE Visible Nulling Coronagraph. In *American Astronomical Society Meeting Abstracts*, volume 224 of *American Astronomical Society Meeting Abstracts*, page #113.09, June 2014.

[4] M. E. Danowski, T. Cook, K. D. Gordon, S. Chakrabarti, B. L. Lawton, and K. A. Misselt. Enigmatic Extinction: An Investigation of the 2175Å Extinction Bump in M101. In *American Astronomical Society Meeting Abstracts*, volume 224 of *American Astronomical Society Meeting Abstracts*, page #220.01, June 2014.

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[6] T. Cook, K. L. Cahoy, N. Lewis, M. R. Swain, S. C. Finn, C. B. Mendillo, S. Chakrabarti, J. Martel, and E. S. Douglas. Planetary Imaging Concept Testbed Using a Recoverable Experiment - Coronagraph. In *American Astronomical Society Meeting Abstracts*, volume 224 of *American Astronomical Society Meeting Abstracts*, page #122.09, June 2014.

[7] Zhan Li, Alan Strahler, Crystal Schaaf, Glenn Howe, Jason Martel, Kuravi Hewawasam, Ewan Douglas, Supriya Chakrabarti, Timothy Cook, Ian Paynter, Edward Saenz, Zhuosen Wang, Xiaoyuan Yang, Curtis Woodcock, David Jupp, Michael Schaefer, Darius Culvenor, Glenn Newnham, and Jenny Lovell. Effective area indexes and angle distributions of leafy and woody components of forests from dual-wavelength terrestrial lidar scanning data. In *Geoscience and Remote Sensing Symposium (IGARSS), 2014 IEEE International*, page MO3.03.1, 2014.

[8] Ian Paynter, Zhan Li, Crystal Schaaf, Alan Strahler, Edward Saenz, Francesco Peri, Glenn Howe, Kuravi Hewawasam, Jason Martel, Ewan Douglas, Supriya Chakrabarti, Timothy Cook, Zhousen Wang, Yan Liu, Shabnam Rouhani, Angel Erb, Michael Schaefer, Glenn Newnham, David Jupp, Jan van Aardt, David Kelbe, Paul Romanczyk, Kerry Cawse-Nicholson, Jason Faulring, Thomas Kampe, Keith Krause, Nathan Leisso, John Armston, Stuart Phinn, Jasmine Muir, and Darius Culvenor. Augmenting full-waveform dual-wavelength echidna lidar (dwel) with highly-portable canopy biomass lidar (cbl) for forestry assessment and satellite validation. In *Geoscience and Remote Sensing Symposium (IGARSS), 2014 IEEE International*, page TU4.08.3, 2014.

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