

Daniel C. Masters

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EDUCATION

UNIVERSITY OF CALIFORNIA, RIVERSIDE Ph.D. ASTROPHYSICS, 2014
Thesis: *“Investigating the Local and High Redshift Universe With Deep Survey Data and Ground-Based Spectroscopy”*
Advisor: Dr. Bahram Mobasher

JOHNS HOPKINS UNIVERSITY M.S. APPLIED PHYSICS, 2006

UNIVERSITY OF MARYLAND, BALTIMORE COUNTY B.S. PHYSICS, with honors, 2003

RESEARCH EXPERIENCE

INFRARED PROCESSING AND ANALYSIS CENTER (CALTECH) 2014–present
Postdoctoral Scholar

THE CARNEGIE OBSERVATORIES 2011–2014
Visiting Graduate Fellow (Advisor: Dr. Patrick McCarthy)
Research: *Near-IR Spectroscopy of High-Redshift Star-forming Galaxies*

INFRARED PROCESSING AND ANALYSIS CENTER 2010–2011
Visiting Graduate Fellow (Advisor: Dr. Peter Capak)
Research: *The Faint End of the Quasar Luminosity Function at High Redshift*

CALIFORNIA INSTITUTE OF TECHNOLOGY (CALTECH) 2009–2010
Visiting Graduate Researcher

AWARDS AND FELLOWSHIPS

SEPTEMBER 2011 Carnegie Observatories Graduate Research Fellowship

JUNE 2011 Robert T. Poe Award for Outstanding Graduate Research, UC Riverside

OCTOBER 2010 Caltech/IPAC Visiting Graduate Fellowship

SELECTED INVITED TALKS

University of California, Los Angeles, Astrophysics Journal Club April 2014
“Investigating the Properties of Emission-Line Galaxies at $z\sim 2$ with Ground-Based Near-IR Spectroscopy”

First Carnegie Symposium in Honor of Leonard Searle, Carnegie Observatories July 2015
“The physical properties of emission line galaxies at $z\sim 2$ with Magellan/FIRE”

Pitt PACC LSST Photo-z Workshop, University of Pittsburgh April 2016
“Spectroscopic mapping of the color-redshift relation for cosmology”

Caltech Astronomy Tea Talk September 2016
“The redshift evolution of strong emission line ratios reflects a link between N/O ratio and galaxy stellar mass”

Institute for Astronomy Colloquium, University of Hawaii September 2016
“The redshift evolution of strong emission line ratios reflects a link between N/O ratio and galaxy stellar mass”

University of California, Santa Barbara, Astrophysics Seminar October 2016
“The redshift evolution of strong emission line ratios reflects a link between N/O ratio and galaxy stellar mass”

SELECTED CONTRIBUTED TALKS

Greater IPAC Science Symposium, Caltech	April 2015
“ <i>Mapping the Galaxy Color-Redshift Relation: Calibration Strategies for Cosmology Surveys</i> ”	
Keck Science Meeting, Caltech	September 2016
“ <i>The Keck Complete Calibration of the Color-Redshift (C3R2) Survey</i> ”	

GRANTS

WFIRST Preparatory Science Proposal, PI: P. Capak, Major Co-I: D. Masters	2014-Present
“ <i>Precision Photometric Redshifts for Cosmology</i> ”	\$324,920
Caltech President’s Fund Proposal, PI: J. Cohen, Major Co-I: D. Masters	2016-Present
“ <i>The Complete Calibration of the Color-Redshift Relation</i> ”	\$300,000
NASA Keck, PI: D. Stern, Major Co-I: D. Masters	2016-Present
“ <i>The Complete Calibration of the Color-Redshift Relation</i> ”	\$50,000
Spitzer Cycle 13, PI: P. Capak	2016-Present
“ <i>The Euclid/WFIRST Legacy Survey</i> ”	\$1,240,000
NASA SMD, PI: J. Bock	2014-2016
“ <i>SPHEREx: An All-Sky Near-Infrared Spectral Survey</i> ”	\$1,000,000

OBSERVING EXPERIENCE

MAGELLAN BAADE 6.5-METER (FIRE)	18 nights
PALOMAR 200-INCH (DOUBLESPEC, LFC)	10 nights
CTIO BLANCO 4-METER (NEWFIRM)	4 nights
KECK II (DEIMOS)	8 nights
KECK I (LRIS/MOSFIRE)	3 nights

PROFESSIONAL ACTIVITIES

Manuscript referee for The Astrophysical Journal	2015/2016
Manuscript referee for the Monthly Notices of the Royal Astronomical Society	2016

FIRST AUTHOR PUBLICATIONS

A Tight Relation Between N/O Ratio and Galaxy Stellar Mass Can Explain the Evolution of Strong Emission Line Ratios with Redshift

Masters, D., Faisst, A., Capak, P., 2016, ApJ, 828, 18

Mapping the Galaxy Color-Redshift Relation: Optimal Photometric Redshift Calibration Strategies for Cosmology Surveys

Masters, D., Capak, P., Stern, D., et al., 2015, ApJ, 813, 53

Physical Properties of Emission-Line Galaxies at $z \sim 2$ from Near-Infrared Spectroscopy with Magellan FIRE

Masters, D., McCarthy, P., Siana, B., et al., 2014, ApJ, 785, 153

Evolution of the Quasar Luminosity Function Over $3 < z < 5$ in the COSMOS Survey Field

Masters, D., Capak, P., Salvato, M., et al., 2012, ApJ, 755, 169

Discovery of Three Distant, Cold Brown Dwarfs in the WFC3 Infrared Spectroscopic Parallels Survey

Masters, D., McCarthy, P., Burgasser, A. J., et al., 2012, ApJL, 752, L14

Specpro: An Interactive IDL Program for Viewing and Analyzing Astronomical Spectra

Masters, D. & Capak, P., PASP, 2011, 123, 638

MENTORING

Sunaina Santhiveeran, FIELDS/MUREP student UCR/JPL <i>Consistent Photometry Across Multiple Deep Fields for Photo-z Calibration</i>	Summer 2016
Samantha Annamraju, FIELDS/MUREP student UCR/JPL <i>Consistent Photometry Across Multiple Deep Fields for Photo-z Calibration</i>	Summer 2016
Daniel McAndrew, Caltech SURF student <i>Application of unsupervised machine learning to galaxy template optimization</i>	Summer 2015
Zachary Taylor, Caltech summer student (now grad student at IfA Hawaii) <i>High dimensional color selection of high redshift galaxies</i>	Summer 2015
Angela (Yi) Gui, Caltech SURF student <i>Connection between AGN activity and star formation in galaxies</i>	Summer 2014
Adam Kalinich, Caltech SURF student <i>Exploring the self-organizing map and its application to photo-z calibration</i>	Summer 2014

TEACHING EXPERIENCE

Instructor, Physics GRE “Boot Camp” CALIFORNIA STATE UNIVERSITY, LONG BEACH	2011/2013
Teaching Assistant, Introductory Modern and Classical Physics UNIVERSITY OF CALIFORNIA, RIVERSIDE	2009–2010
Teaching Assistant, Introductory Physics Laboratory UNIVERSITY OF MARYLAND, BALTIMORE COUNTY	2002–2003
Tutor, Physics Tutorial Center UNIVERSITY OF MARYLAND, BALTIMORE COUNTY	2001–2003

INSTRUMENTATION AND MISSION WORK

- On SPHEREx mission development team
- Consulted for WFIRST formulation science group
- Assisting in developing Euclid mission requirements
- Assisting in defining future Keck instrumentation to support Euclid/WFIRST