

Gregory Mace

Contact Information

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Education

Ph.D. Astronomy, UC Los Angeles, Los Angeles, CA, *in progress*
M.S. Astronomy, UC Los Angeles, Los Angeles, CA, June 2010
B.S. Astronomy, Northern Arizona University, Flagstaff, AZ, May 2008
B.S. Physics, Northern Arizona University, Flagstaff, AZ, May 2008

Research Experience

Dr. Ian McLean, UC Los Angeles

Infrared Laboratory Research Assistant – Mechanism testing of MOSFIRE including the filter wheel, focus mechanism, and detector head. (6/2009 – present)
Graduate Student Researcher – I have reduced spectra and helped organize the BDSS archive. I am currently working to develop a commissioning galactic science plan. (6/2009 – present)

Dr. Lisa Prato, Lowell Observatory

Lowell Observatory Research Assistant – Continuation of NASA Space Grant work reducing NIRSPEC data, observed at McDonald Observatory and on the Lowell 31-inch, tested reduction procedures, and published results. (8/2007 – 9/2008)
NASA Space Grant Research Assistant – Reduced spectral data taken on the instruments CSHELL and NIRSPEC of young, low mass spectroscopic binary star systems; used REDSPEC and IDL procedures to determine precise mass ratios. (8/2007 – 4/2008)
NASA Space Grant Research Assistant – Planned, acquired, and reduced JHK-band photometry of the star cluster IC348 with data taken on the instrument Mimir on the Perkins 1.8-meter telescope; reduced using custom IDL procedures and used color-color diagrams to determine infrared excess. (8/2005 – 4/2006)

Dr. David Koerner, Northern Arizona University

Research Assistant – Processed Spitzer Space Telescope images to identify large 24 and 70 micron excess light emission in order to identify circumstellar disks around nearby stars. (12/2006 – 1/2007)
REU Research Assistant – Established a database of infrared data for all known stars within 25pc of the Sun by compiling 2MASS and Spitzer database photometry. (5/2006 – 8/2006)

Dr. Thomas Robertson and Dr. Thomas Jordan, Ball State University

REU Research Assistant – I acquired and reduced data for half a square degree of the sky near the galactic plane, taken on the 0.9-meter SARA telescope, using IRAF; used CaH photometry to separate M dwarf stars from M giants and determine the luminosity function for part of Selected Area 109. (5/2007 – 8/2007)

Memberships

Sigma Pi Sigma: 5/2008-present
AAS Junior Member: 2007-present
Sigma Alpha Lambda Honors Organization: 2004-present

Honors and Awards

NSF GRFP Honorable Mention: 2010
UCLA Physics and Astronomy Department Outstanding TA Award: 2008-2009
Bedwell Physics Scholar: 2008-2009
NASA Space Grant Recipient: 2007-2008
Raytheon Physics Scholar: 2006-2007
Junior Slipper Scholarship: 2005-2006
NASA Space Grant Recipient: 2005-2006

Observational Experience

I have observed with NIRSPEC on Keck II remotely from UCLA, the Lowell Observatory 72-inch Perkins and 31-inch telescopes, the Shane 3-meter at Lick employing AO and LGS, the SARA 0.9-meter telescope at Kitt Peak, and the McDonald 0.8-meter telescope. I received time as PI on the Lowell 31-inch telescope for 39 nights as part of automated queue observing, as well as 10 nights of classical observing on the McDonald Observatory 82-inch.

Software Experience

I have worked extensively with IDL and IRAF to do both photometric and spectroscopic data reduction. I am currently learning to use ZEMAX optical design software and to write photometric software using Python/PyRAF.

Teaching Experience

Astronomy 3 Lab TA, "Nature on the Universe", 2 Sections F08, 1 Section W09,S09,S10
Astronomy 3 Lead TA, Coordinate and Organize 5 TA's and 12 Lab Sections, F09
Astronomy 82 Discussion TA, "Astroph. II: Stellar Evo., Galaxies, and Cosmology", S09
Astronomy 127 Discussion TA, "Stellar Atmospheres, Interiors, and Evolution", W09
Physics 495 TA Consultant, Teaching new TA's good teaching techniques, F09

Education and Outreach

I have attended the "Astro 101 Teir 1 Teaching Excellence Workshop" at AAS and worked closely with past Astro 3 TA's to update the Astro 3 lab manual and write a TA manual. I became the first *UCLA Astronomy Live!* Outreach Coordinator in Fall 2009. In this position I have established an annual open house event that had ~1000 attendees in its first year. I have applied for, and was awarded, university funding to develop our outreach program. In the first year the outreach group will have been involved in 5 different university events. In coming years I hope to establish a detailed outreach program to visit local schools on a regular basis.

Publications

- Mace, G.N.**, Prato, L., Wasserman, L., Schaefer, G., Franz, O., Simon, M., “The Highly Eccentric Pre- Main Sequence Spectroscopic Binary RX J0529.3+1210”, 2009, *AJ*, 137, 3487
- Mace, G.N.**, Jordan, T.M., Robertson, T. H., “The Luminosity Function of M Dwarf Stars in Selected Area 109”, 2008, *Journal of the Southeastern Association for Research in Astronomy*, vol.2, p.2-5, 2, 2
- Currie, T. et al. “Spitzer IRAC and JHK Observations of η and χ Persei: Constraints on Protoplanetary Disk and Massive Cluster Evolution at $\sim 10^7$ years”, 2007, *Astrophysical Journal*, 659, 599

Talks and Presentations

- Talk: Lowell Obs. Colloquium, “Mass Ratios of Young Spectroscopic Binaries”, 4 Sept. 2008
- Poster: **Mace, G.N.** & McLean, I.S., “Imaging with MOSFIRE: Data Reduction Package and Processed Simulated Images”, AAS 215
- Poster: **Mace, G.N.**, Prato, L., Wasserman, L., Torres, G., & Mathieu, R. “The Spectroscopic Binary Mass Ratio in the Young Ophiuchus Triple NTTS 155808-2219”, 2009, *Bulletin of the American Astronomical Society*, 41, 213
- Poster: **Mace, G.N.** & Prato, L., “RX J0529.3+1210: The Most Eccentric Pre-Main Sequence Spectroscopic Binary”, 2007, *Bulletin of the American Astronomical Society*, 38, 851
- Poster: Robertson, T.H., **Mace, G.N.**, Jordan, T.M., “The Luminosity Function of Early M Dwarf Stars in Selected Area 109”, 2007, *Bulletin of the American Astronomical Society*, 38, 760

References

- Dr. Ian McLean, Physics and Astronomy Building, 430 Portola Plaza, Box 951547
Los Angeles, CA 90095-1547. mclean@astro.ucla.edu (310-825-1140)
- Dr. Emily Rice, American Museum of Natural History, Department of Astrophysics,
Central Park West at 79th Street, New York, New York 10024. erice@amnh.org
- Dr. Lisa Prato, Lowell Observatory, 1400 West Mars Hill Road, Flagstaff, AZ 86001.
lprato@lowell.edu (928-774-3358)
- Dr. Kathleen Eastwood, Department of Physics and Astronomy, Northern Arizona
University, Box 6010 Flagstaff, AZ 86011-6010. Kathy.Eastwood@nau.edu
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- Dr. Thomas Jordan, Department of Physics and Astronomy, Ball State University,
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- Dr. David Koerner, Department of Physics and Astronomy, Northern Arizona University,
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- Dr. Stephen Tegler, Department of Physics and Astronomy, Northern Arizona University,
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