

# Joleen K. Carlberg

Department of Astronomy  
P.O. Box 400325  
Charlottesville, VA 22904

Office phone: (434)924-0686  
Fax: (434)924-3104  
jkm9n@virginia.edu

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## Education

- **University of Virginia, Charlottesville, VA**
  - Ph.D. in Astronomy 2010
  - M.S. in Astronomy 2006
- **Villanova University, Villanova, PA**
  - B.S. in Astronomy & Astrophysics 2004
  - Minor in Physics
  - Summa Cum Laude

## Research

- **Graduate Research Assistant** 2004-2010
  - *University of Virginia, Advisor: Dr. Steven Majewski*

Studying detailed chemical composition of rapidly rotating K giant stars to determine whether planets ingested during a star's evolution is the cause of rapid rotation.

Looking for structures, i.e. star streams or dwarf galaxies, associated with the Milky Way using M giant stars from the 2MASS database as tracers.
- **NASA Academy Summer Intern** 2004
  - *Goddard Space Flight Center, Advisor: Dr. James Thieman*

Wrote software to import Radio Jove (an amateur radio telescope kit) data into IDL for scientific analysis, allowing the study of radio outbursts from Jupiter associated with Io.

Science team member and educational outreach leader for the academy group project, *Design the Next Mars Scout Mission: Mars Subsurface Chemical Life Explorer*. Designed the project's web page.
- **Research Experience for Undergraduates (REU) Summer Intern** 2003
  - *Smithsonian Astrophysical Observatory, Advisor: Dr. Peter Nisenson*

Precisely measured the radial velocity offsets between the stellar "reference spectra" of exoplanet candidate host stars taken before and after a physical upgrade of the AFOE echelle spectrograph so that the pre- and post-upgrade radial velocities could be shifted to the same velocity zero-point.
- **Undergraduate Research Assistant** 2002-2004
  - *Villanova University, Advisor: Dr. Edward Sion*

Modeled the ultraviolet spectra of symbiotic variable star systems to study their physical properties, specifically to look for the presence and nature of associated accretion disks.

## Teaching & Professional Development

- **Summer Session Instructor** June 2008  
• *University of Virginia*  
Taught a three-credit undergraduate Astronomy course entitled *Life Beyond Earth*.
- **Tomorrow's Professor Today** Sep. 2007 – Apr. 2009  
• *University of Virginia*  
A program designed to prepare graduate students for the transition to academic professor, with particular emphasis on teaching.

## Publications and Presentations

- **Carlberg, J. K.**, Majewski, S. R., Smith, V. V., Cunha, K., Patterson, R., & Bizyaev, D., Arras, P, Rood, R. T., 2009, *A New Spin on Red Giant Branch Rapid Rotators: Evidence for Chemical Exchange Between Planets and Evolved Stars*, oral presentation for IAU Symposium 265, Chemical Abundances in the Universe, Rio de Janeiro, Brazil, Aug. 10-14, 2009
- **Carlberg, J. K.**, Majewski, S. R., & Arras, P., 2009, ApJ, 700, 832, *The Role of Planet Accretion in Creating the Next Generation of Red Giant Rapid Rotators*
- **Miller, J. K.**, Majewski, S., Smith, V., Rood, R., Cunha, K., Patterson, R., & Bizyaev, D., 2007, *Looking for Chemical Evidence for the Accretion of Planets onto Red Giant Stars*, Poster presentation for Extreme Solar Systems Conference, held in Santorini, Greece, Jun. 25-29, 2007
- Kolb, K., **Miller, J. K.**, Sion, E. M., & Mikolajewska, J., AJ, 128, 1790, 2004 *Synthetic Spectral Analysis of the Hot Component in the S-Type Symbiotic Variable EG Andromedae*
- **Miller, J. K.**, Korzennik, S. G., & Nisenson, P., 2003, *Calculating Velocity Shifts Between the Pre- and Post-Upgrade AFOE Data Sets*, AAS Meeting 203, #17.10
- Kolb, K. J., **Miller, J. K.**, & Sion, E. M, 2003, *Modelling the Hot Components of the Symbiotic Variables EG Andromeda and SY Muscae*, AAS Meeting 202, #39.08

## Awards and Professional Membership

- NASA Earth and Space Science Fellowship 2008,2009
- VSGC Graduate Fellowship 2008,2009
- NSF Graduate Research Fellowship, Honorable Mention 2004
- Barry M. Goldwater Fellow 2003
- American Astronomical Society Junior Member since 2003