

Stuart J. Robbins  
stuart.robbsins@colorado.edu

DEPARTMENT OF ASTROPHYSICS AND PLANETARY SCIENCES  
VCB 391  
UNIVERSITY OF COLORADO  
BOULDER, CO 80309

**EDUCATION:**

**Graduate Education:** UNIVERSITY OF COLORADO AT BOULDER

University of Colorado, Boulder, CO 80309

*Standing:* Fourth-Year graduate student; Ph.D. Candidate *in* Geophysics; 3.77 G.P.A.

M.S. in Geophysics, Spring 2008

**Undergraduate Education:** CASE WESTERN RESERVE UNIVERSITY

10900 Euclid Avenue, Cleveland, Ohio 44106

*Graduated:* Spring 2005, 3.73 G.P.A. *cum laude*

B.S. in Astronomy, double minors in Geology and Physics

**High School Education:** INDIAN HILL EXEMPTED VILLAGE SCHOOL DISTRICT

6845 Drake Road, Cincinnati, Ohio 45243

*Graduated:* Spring 2001, 4.027 cumulative G.P.A., Diploma with Honors

**RESEARCH EXPERIENCE:**

**CU Boulder** - January 2007 *through* present **LASP**

*Advisor:* Brian Hynek, Ph.D. <hynek@lasp.colorado.edu>

*Project Description:* Exploration of crater properties in Arabia Terra to determine region's history.

Generating a catalog of all lobed craters on Mars, morphology and morphometry, to determine formation mechanisms.

Generating a complete catalog of Mars craters to 2 km.

**CU Boulder** - Summer *through* Dec.2006 **LASP**

*Advisor:* Glen Stewart, Ph.D. <glen.stewart@colorado.edu>

*Project Description:* Work on simulating Saturn's rings.

- eventually, will be able to simulate stellar occultations observed by *Cassini* to better constrain parameters of the ring system

**CU Boulder** - Spring 2006 **Class Project**

*Advisor:* Brian Hynek, Ph.D. <brian.hynek@colorado.edu>

*Project Description:* Statistical analysis and study of lobed craters on Mars.

- wrote programs to analyze MOLA topography data to determine various characteristics of lobed craters and their lobate ejecta, and compared with other data sets for physical/chemical trends
- in a proof-of-concept, did ¼ of the planet to show that previous, more limited but "representative" studies were not actually representative and betrayed real trends
- plan to continue project in the future

CU Boulder - Fall 2005

Class Project

*Advisor:* Robert Pappalardo, Ph.D. <robert.pappalardo@colorado.edu>

*Project Description:* Investigation into possibility of Mercury's smooth plains regions having an impact-related instead of volcanic origin.

- used analytic scaling equations to determine what size crater on Mercury was needed before its melt would exceed the crater volume
- determined transition range of ~200-700 km for this
- linked to statistical anomaly where, per surface area, Mercury is lacking in large impact events compared to Earth's Moon

CU Boulder - Summer 2005

LASP

*Mentor:* Nick Schneider, Ph.D. <nick.schneider@lasp.colorado.edu>

*Project Description:* Search for periodic asymmetries in Cassini UVIS spectral data of the Io plasma torus.

- programming in IDL
- part of poster presentation at Summer 2005 DPS Meeting

NSO REU Program - Summer 2004

National Solar Observatory, NOAO, in Tucson, AZ

*Mentors:* Carl Henney, Ph.D. <chenney@noao.edu> and Jack Harvey, Ph.D. <jharvey@noao.edu>

*Project Description:* Development of an empirical model for solar wind forecast based upon He I images.

- programming in Linux, Unix, IDL, and Java
- presentation of project at NOAO seminar and research paper (2006, *Solar Physics*)
- presentation of research at San Diego, CA 2005 AAS and New Orleans, LA 2005 SPD Meetings

CWRU - Fall 2003 and Spring 2004

Dept. of Astronomy

*Supervisor:* John Feldmeier, Ph.D. <johnf@bottom.astr.cwru.edu>

*Project Description:* Finding planetary nebulae near and around M81/82 group.

- programming in Linux, Unix, SM, and IRAF; reduction of KPNO mosaic data
- project based upon: Feldmeier, J. J. et al. ApJ Supplement Series, **145**, 65-81 (2003).

CWRU - October through December 2003

Dept. of Geology

*Supervisor:* Ralph Harvey, Ph.D. <rph@case.edu>

*Project Description:* Simulation of Earth-Mars/Mars-Earth ejecta exchange with computer simulations.

- programming in Java to simulate solar system dynamics
- project based upon: Gladman, B. J. et al. Science, **271**, 1387-1392 (1996).

SARA REU Program - Summer 2003

Clemson University, Dept. of Physics & Astronomy

*Mentor:* Bradley S. Meyer, Ph.D. <mbradle@clemson.edu>

*Project Description:* Java implementation and web wrapper of Clemson nucleosynthesis code.

- programming in Linux, Unix, IDL, Java, JavaScript, IONJava, HTML, and XML
- presentation of project at final SARA conference and research paper (in press, IAPPP)
- presentation of research at Atlanta, GA 2004 AAS Meeting

CWRU - Fall 2003 and Spring 2004

Dept. of Physics

*Mentor:* Corbin Covault

*Project Description:* Work in high-energy astrophysics.

## PUBLICATIONS:

- In Preparation **Robbins, S.J.;** Stewart, G.R.; Lewis, M.C.; and Colwell, J. *High-Optical Depth N-Body Simulations of Saturn's Rings: Comparison with Cassini UVIS and a New Estimate for the Mass of the B Ring.* (In Preparation for Icraus).
- In Preparation **Robbins, S.J.;** Hynek, B.M., and R. Haber. *Evidence for Erosional Modification in the Formation of Arabia Terra, Mars.* (In Preparation for Icarus).
- 2006 **Robbins, S. J.;** Henney, C. J.; and J. W. Harvey. *Solar Wind Forecasting with Coronal Holes.* Solar Physics, **233**, No. 2, (2006). Available online at <<http://arxiv.org/pdf/astro-ph/0701275>>.
- 2003 **Robbins, S. J.;** Meyer, B. S.; and G. C. Jordan, IV. *Modeling Nucleosynthesis: Web-Based Tools.* IAGPP. pp. 22-29, **94**, (2003).
- In Preparation **Robbins, S. J.** *The Physics and Astronomy of Futurama*; (in preparation) ApJ, Physics Teachers, or possible book format.

## CONTRIBUTED ABSTRACTS / CONFERENCE PROCEEDINGS:

- 2008/10 DPS **Robbins, S. J.;** Stewart, G.R.; Colwell, J.E.; and M.C. Lewis. *Self-Gravity Wakes in Saturnian Rings: Effects of Varying Location, Particle Density and Introducing a Particle Size Distribution.* pp. 424, **40:21.05** (2008).
- 2008/09 Mars Crater Conf. **Robbins, S. J.;** Haber, R.; and B. M. Hynek. *depth/Diameter Ratios of 2.5+ km Craters in Arabia Terra, Mars, and Hints at Refining the Region's History.* Online only.
- 2008/09 Mars Crater Conf. **Robbins, S. J.;** and B. M. Hynek. *MOLA Data May Introduce Significant Artifacts in Crater Diameters.* Online only.
- 2008/03 LPSC **Robbins, S. J.;** and B. M. Hynek. *Testing Formation Theories of NW Arabia Terra, Mars: New Clues from Old Craters.* pp. 2417, **39** (2008).
- 2007/10 DPS **Robbins, S. J.;** Stewart, G.R.; Colwell, J.E.; and M.C. Lewis. *Simulations of Clumping Effects in High-Optical Depth Rings.* **39:07.05** (2007).
- 2007/10 DPS Stewart, G.R.; **Robbins, S. J.;** and J.E. Colwell. *Evidence for a Primordial Origin of Saturn's Rings* pp. 07.06, **39** (2007).
- 2007/10 Mars Crater Conf. **Robbins, S. J.;** and B. M. Hynek. *A New Automated Method of Determining Depth, Diameter, and Volume of Known Craters.* Online only.
- 2007/10 DPS **Robbins, S. J.;** Stewart, G.; Colwell, J. E.; and M. C. Lewis. *Simulations of Clumping Effects in High-Optical Depth Rings.* Bulletin of the American Astronomical Society. pp. 420, **39:3** (2007).
- 2005/09 DPS Schneider, N.M.; **Robbins, S.J.;** Delamere, P.A.; and A.J. Steffl. *Ion Temperature Control of the Io Plasma Torus.* Bulletin of the American Astronomical Society. pp. 758, **37:3** (2005).
- 2005/05 AGU/SPD **Robbins, S. J.;** Henney, C. J.; and J. W. Harvey. *Solar Wind Forecasting with SOLIS-VSM.*
- 2005/01 AAS **Robbins, S. J.;** Henney, C. J.; and J. W. Harvey. *Solar Wind Forecasting with Coronal Holes.* Bulletin of the American Astronomical Society. pp. 1350, **36:5** (2004).
- 2004/01 AAS **Robbins, S. J.;** Meyer, B. S.; and G. C. Jordan, IV. *Modeling Nucleosynthesis: Web-Based Tools.* Bulletin of the American Astronomical Society. pp. 1209, **35:5** (2003).

## GRANTS:

- Sep. 2007 - Aug. '09 Hynek, B.; and **S. J. Robbins.** *Understanding Lobate Craters on Mars: Keys to Subsurface Water.* NASA grant awarded under the 2007 NESSF (formerly GSRP) program in planetary science. I would technically have been the PI but the advisor was required to be under the grant terms.

**INVITED SPEAKER:**

|                        |   |
|------------------------|---|
| August, 3 2007         | <b>Robbins, S. J.</b> <i>The Apollo Moon Hoax: Why We Did NOT Not Go to the Moon.</i><br>Spoke at the Pre-Party event of Denver's "scepticamp." |
| October 15, 2004       | Spoke as a student representative to the External Departmental Review for the CWRU Astronomy Department.  |
| March 18, 2004         | Spoke as a student representative to the Outcome Assessment Committee for the CWRU Physics Department.  |
| January 2002, '03, '05 | Spoke as a student representative for CWRU in a recruitment for graduating high school students.  |
| November 9, 2002       | Spoke as an astronomy major / physics minor student representative for CWRU in its "Connect with CWRU" program for prospective students.        |

**PROFESSIONAL AFFILIATIONS:**

|                |  |
|----------------|--|
| 2004 - present | Junior Member, American Astronomical Society |
|----------------|--|

**ACTIVITIES & HONORS:**

|                         |  |
|-------------------------|--|
| Fall 2008 – Spring 2009 | Webmaster of the APS Department at CU Boulder  |
| Fall 2006 - Spring 2008 | Graduate student representative on Course Fees Committee                                 |
| Fall 2006 - Spring 2008 | Graduate student representative on Observatories Committee                               |
| Fall 2006 - Spring 2007 | Graduate student representative on COSMOS lab sub-committee                              |
| Fall 2004               | Invitation for induction into the Mortar Board National Honor Society                    |
| Fall 2004, Spring 2005  | Dean's Honors List   |
| 2002 - 2004             | Dean's High Honors List (five consecutive semesters)                                     |
| Spring 2004             | Invitation for induction into the International Golden Key Honors Society                |
| 2001                    | President's Award for Outstanding Academic Excellence                                    |
| 2001                    | Ohio State Board of Education's Award of Merit   |
| 2000                    | Ohio Board of Regents recognition  |
| 2000                    | Member of the Honor Guard at Commencement  |
| 2000                    | National Merit Commended Scholar   |
| 2000                    | Inducted, International Thespians Troupe #1367   |
| 1999 - 2001             | AP Scholar with Honors   |
| 1999                    | Inducted, National Honor Society   |
| 1998 - 2001             | Selected to take the National Math Exam  |
| 1998 - 2001             | <i>Who's Who in American High School Students</i> listing (3 consecutive academic years) |
| May 1997 & 1998         | First place in Spanish I and Biology in the Ohio Test of Scholastic Achievement          |
| March 1997              | Grand Prize in the National Robotics Competition   |

**Music:**

|                    |   |
|--------------------|---|
| 2000               | Created new arrangement of the IH Alma Mater (arr. for concert band)                          |
| 1999 & 2000        | Bands of America Summer Symposium for Concert Band and Leadership                             |
| Winter 1999        | Rating of "1" on 5-point scale at Ohio Music Educators' Association Solo and Ensemble Contest |
| Winter 1999        | Eastern Kentucky University Honors Band   |
| 1999               | Composed solos for IH Marching Band   |
| 1999               | Created the award-winning IH Flute Choir  |
| 1998 - 1999 & 2001 | "Most Academically Achieved Freshman/Sophomore/Senior" in the Band                            |

Leadership:

2002 - 2005      Officer, Physics and Astronomy Club, incl. VP for 2004 - '05  
2003 - 2005      Officer, SIGMAC (Apple Computer Club)  
Fall 2004          Nominated to attend Case LeaderShape Conference  
2002 - 2003      Webmaster, Pierce House (a dormitory)  
2002 - 2003      Webmaster, Spectrum  
1999 - 2001      Student Representative, School Planning Team  
1999 - 2001      Vice President, Creative Digital Technology Club  
1999 - 2001      Robotics Chair, Technology Club  
1999 - 2001      Mentored, Middle School Science Olympiad  
1998 - 2001      Historian (1998-99) and Vice President (2000-01), Spanish Club  
1998 - 1999      Mentored, Elementary School after school science club

**COLLEGE SCHOLARSHIPS & AWARDS (2001):**

*from Case Western Reserve University:* President's (\$14.5k annually) and Ohio Student Choice Grant (\$500 annually)

*from Purdue University:* Dean's Freshman Scholar Award (\$6.6K) and Academic Success Award

*from University of Cincinnati:* Founders' Scholarship (\$20K) and Honors Program acceptance

*from Ohio State Board of Education:* \$500 scholarship for scores on Ohio's 12<sup>th</sup> Grade Proficiency Test

**NON-RESEARCH WORK EXPERIENCE:**

University of Colorado - Boulder

(303)-735-6141  
University of Colorado  
Boulder, CO 80309

APS Department

*Supervisor:* Brian Hynek, Ph.D.  
<hynek@lasp.colorado.edu>  
*Wage:* 1/4-Time Graduate Student Stipend

*Employed:* Spring Semester 2007

*Job included:* Teaching Assistant for introductory astronomy labs for non-majors - lecture TA

University of Colorado - Boulder

(303)-735-6141  
University of Colorado  
Boulder, CO 80309

APS Department

*Supervisor:* Rosalba Perna, Ph.D.  
<rosalba.perna@colorado.edu>  
*Wage:* Graduate Student Grader Salary

*Employed:* Fall Semester 2006

*Job included:* Graded undergraduate majors astrophysics class

University of Colorado - Boulder

(303)-735-6141  
University of Colorado  
Boulder, CO 80309

APS Department

*Supervisor:* John Stocke, Ph.D.  
<john.stocke@colorado.edu>  
*Wage:* Graduate Student Stipend

*Employed:* Spring Semester 2006

*Job included:* Teaching Assistant for introductory astronomy labs for non-majors - ran two lab sections

University of Colorado - Boulder

(303)-735-6141  
University of Colorado  
Boulder, CO 80309

APS Department

*Supervisor:* Doug Duncan, Ph.D.  
<dduncan@colorado.edu>  
*Wage:* Graduate Student Stipend

*Employed:* Fall Semester 2005

*Job included:* Teaching Assistant for introductory astronomy labs for non-majors - ran two lab sections

Case Western Reserve University

(216)-368-3729  
10900 Euclid Avenue  
Cleveland, OH 44106

Dept. of Astronomy

*Supervisor:* Chris Mihos, Ph.D.  
<hos@onager.astr.cwru.edu>  
*Wage:* \$8.50 then \$9.50 per hour  
salary made possible by NSF grant AST 98-76143

*Employed:* Spring Semester 2002; Fall Semester 2004 through Spring Semester 2005

*Job included:* web page design, implementation, construction, modification, and expansion; Java programming and creation of educational applets for astronomy

*Reason for Departure:* job completed; N/A

Case Western Reserve University

rel@cwru.edu  
10900 Euclid Avenue  
Cleveland, OH 44106

Dept. of Astronomy

*Supervisor:* Dr. R.E. Luck, Ph.D.  
*Wage:* \$9.50 per hour

*Employed:* January 2004 through December 2004

*Job included:* TAing and Grading for ASTR 201 - an astronomy class for non-majors

*Reason for Departure:* N/A

Case Western Reserve University

(216)-368-4125  
10900 Euclid Avenue  
Cleveland, OH 44106

Dept. of Physics

*Supervisor:* Charles Rosenblatt, Ph.D.  
*Wage:* \$8.50 per hour

*Employed:* January 13, 2003 through May 8, 2003

*Job included:* grade student homework

*Reason for Departure:* job completed

Public Library of Cincinnati and Hamilton County

(513)-369-6028  
7200 Miami Avenue  
Cincinnati, OH 45243

Madeira Branch

*Supervisor:* Debbie Hull  
*Wage:* \$50 for job  
salary made possible by the Friends of the Public  
Library and the Dorothy M.M. Kersten Fund

*Employed:* June 7, 2002

*Job included:* display of a multitude of different types of origami; teach people of all ages to create simple origami models

*Reason for Departure:* job completed

Cincinnati Children's Hospital Medical Center

(513)-636-8098  
3333 Burnette Avenue  
Cincinnati, OH 45229

Div. of Molecular Cardiovascular Biology

*Supervisor:* Katherine Yutzey, Ph.D.  
*Wage:* \$300 for job

*Employed:* June through August 2002

*Job included:* re-design of a two-page recruitment brochure

*Reason for Departure:* job completed

Cincinnati Children's Hospital Medical Center

eHealth

(513)-636-8098  
3333 Burnette Avenue  
Cincinnati, OH 45229

*Supervisor:* Steve Campbell  
*Wage:* \$12.00 per hour

*Employed:* May 13, 2002 through August 5, 2002

*Job included:* web page design, implementation, construction; transfer of print materials to the internet

*Reason for Departure:* leave for school

Cincinnati Children's Hospital Medical Center

Div. of Molecular Cardiovascular Biology

(513)-636-8098  
3333 Burnette Avenue  
Cincinnati, OH 45229

*Supervisor:* Melissa Colbert, Ph.D.  
*Wage:* \$20.00 per hour

*Employed:* March 2002

*Job included:* web page design, implementation, construction; transfer of print materials to the internet

*Reason for Departure:* job completed

Cincinnati Children's Hospital Medical Center

Div. of Molecular Cardiovascular Biology

(513)-636-8098  
3333 Burnette Avenue  
Cincinnati, OH 45229

*Supervisor:* Jeffrey Robbins, Ph.D.  
*Wage:* \$20.00 per hour

*Employed:* August 2001

*Job included:* web page design, implementation, construction

*Reason for Departure:* job completed

Public Library of Cincinnati and Hamilton County

Madeira Branch

(513)-369-6028  
7200 Miami Avenue  
Cincinnati, OH 45243

*Supervisor:* Alice Penrod  
*Wage:* Start: \$6.96 per hour  
End: \$7.42 per hour

*Employed:* November 1999 through August 11, 2001

*Job included:* shelving; patron assistance; filling requests; organizing, shifting, and fronting books and other media; extensive computer usage; reference look-ups; phone assistance

*Reason for Departure:* leave for college

Kroger Company, Inc.

Store #402

(513)-271-1260  
6950 Miami Avenue  
Cincinnati, OH 45243

*Supervisor:* Marianna  
*Wage:* Start: \$5.25 per hour  
End: \$6.50 per hour

*Employed:* May 9, 1998 through October 30, 1999 and June 18, 2001 through August 11, 2001

*Job included:* bagging; maintenance; cashiering; stocking; customer assistance

*Reason for Departure:* school work (first time); leave for college (second time)

Cincinnati Children's Theatre, Inc.

(513)-569-8080  
2146 Florence Ave.  
Cincinnati, OH 45206

*Supervisor:* Jack Louiso  
*Wage:* \$400 for job

*Employed:* April 1, 1995 through May 7, 1995

*Job included:* acting

*Reason for Departure:* job completed

## **EDUCATIONAL WORK AND PUBLIC OUTREACH:**

|                        |   |
|------------------------|---|
| 2008-2009 School Year  | Participating scientist with Project ASTRO-GEO which paired a scientist with a grade school teacher for classroom visits to help connect students with professionals in the field throughout the academic year.   |
| June 13, 2008          | Gave a 1-hr public lecture about the Pluto Planetary Status debate at the CU-Boulder's Fiske Planetarium.   |
| April 17-18, 2008      | Gave a 1-hr public lecture about the Apollo Moon Hoax at the CU-Boulder's Fiske Planetarium.  |
| July 19-20, 2007       | Gave a 1-hr public lecture about the Apollo Moon Hoax at the CU-Boulder's Fiske Planetarium.  |
| May 29, 2007           | Led a one-hour "Tour Through the Solar System" interactive program for approx. 25 children (ages 12+) and parents at the Madeira branch of the Public Library of Cincinnati and Hamilton County (PLCH).   |
| April 14, 2007         | Gave a public lecture about the Apollo Moon Hoax at the CU-Boulder's Fiske Planetarium for the public as part of the "Yuri's Night" celebration.  |
| April 2006, '07        | Ran the 16" and 18" Sommers-Bausch Observatory telescopes as part of the Astronomy Day activities at CU-Boulder.  |
| 2006-2007 School Year  | Mentored high school student on performing open cluster photometry to derive relative cluster ages as part of the Boulder Valley School District's "Science Research Seminar." Student won 3 <sup>rd</sup> place in the regional science fair.  |
| September 2006         | Taught an APS-specific GTP seminar on using the department's new CCD camera at the campus observatory.  |
| Fall 2005              | Website "Journey Through the Galaxy" listed in <u>Exploring Earth and Space Systems</u> by Kent Franklin (© 2005) as site to help grades 9-12 students pass proficiency in the Minnesota Earth and Space Systems standards  |
| Feb 21, 2004 & 26, '05 | Proctored and graded MS & HS Astronomy competitions for Science Olympiad, Northeast Ohio Regional; wrote the HS test in 2005  |
| 2003 - 2005            | Officer, SIGMAC (Apple Computer Club)   |
| 2002 - 2005            | Officer, Physics and Astronomy Club, including VP for 2004 - 2005   |
| 2002, '04, & '05       | Led four one-hour origami instruction sections for approx. 25 children (ages 6-13) and parents at the Madeira branch of the Public Library of Cincinnati and Hamilton County (PLCH). Programs were on July 25, 2002; January 10, 2004 (two programs); and June 9, 2005.                     |
| Aug. 6, 2004           | Web site "Journey Through the Galaxy" place in "The Scout Report" (Volume 10, No. 31) (see <a href="http://scout.wisc.edu">http://scout.wisc.edu</a> )  |
| June 22 & 26, 2004     | Assisted with the National Solar Observatory's TLRISE program -- a brief internship for grade school teachers to allow them to experience cutting-edge astronomical research  |
| June & July 2004       | Assisted with Kitt Peak Nightly Observing Program (KPNO NOP) -- a nightly public outreach program for members of the general public   |
| 2003                   | Made graphic describing creation of color composite images from telescope data in use on the Hubble Heritage website: < <a href="http://heritage.stsci.edu/commonpages/infoindex/ourimages/color_comp.html">http://heritage.stsci.edu/commonpages/infoindex/ourimages/color_comp.html</a> > |
| 2002 - present         | Web site "Journey Through the Galaxy" listed on Encyclopædia Britannica with 5-star "Best of the Web" rating  |
| 2002-'03 School Year   | Re-created and ran the web sites for: Spectrum, PAC (Physics and Astronomy Club), and Pierce House.   |
| January 2002           | Presented a program about the flute the Madeira Library (Cincinnati, OH).   |
| 2000                   | Participated in IH First Grade Musical  |
| 2000                   | Participated in Pancake Breakfast Fundraiser  |
| 1999 - 2001            | Helped in IH annual fundraiser "Party on the Hill"  |
| 1999                   | Created web pages for: Cincinnati Audubon Society, IH Marching Band, IH Research Guide, IH Spanish Club, IH Student Government, and IH Robotics Club  |
| 1999                   | Tutored sixth-grader for all subjects   |
| 1998 - 2001            | Dixie Classic Concert Band Festival   |

1997 - '99

Participated in ThinkQuest (<http://www.thinkquest.org>)

1997 - '98

Volunteered at the American Heart Association

1997 - present

Created, managed, and maintained website "Journey Through the Galaxy" which is an educational astronomy site for the edification of the general public; presently available at [<http://burro.astr.cwru.edu/stu/index.html>](http://burro.astr.cwru.edu/stu/index.html)