# Curriculum Vitæ: Robert Louis Marcialis

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**Education:**

*Ph.D*., University of Arizona, Tucson, AZ; Planetary Sciences, 1990.

*Dissertation Title:* The Pluto–Charon system as revealed during the mutual events.

*Dissertation Directors:* Dr. Larry A. Lebofsky, Dr. William B. Hubbard

*M.S*., Vanderbilt University, Nashville, TN; Physics & Astronomy, 1983.

 *Thesis Title:* A two–spot model for the surface of Pluto.

 *Thesis Director:* Dr. Douglas S. Hall

*S.B.*, Massachusetts Institute of Technology, Cambridge, MA; Earth & Planetary Sciences, 1980.

*S.B.*, Massachusetts Institute of Technology, Cambridge, MA;

Aeronautical & Astronautical Engineering, 1978.

**Professional Experience:**

Mathematical Technical Typist, 2010–2013: Department of Mathematics, University of Arizona

Typesetting and document preparation of faculty manuscripts and books in TEX, LATEX, and Word, especially formatting and proofreading of equations. Serve as the interface between the author and the publisher. Incorporate publishing house macros and style files into the author’s document, and provide camera-ready copy to the publisher.

Temporary Help (Engineer), 2004: Lunar & Planetary Laboratory, University of Arizona

Provided support and data calibration for the RAC (Robotic Arm Camera) instrument on the Mars Phoenix Lander. Located and retrieved archival 2001 RAC calibration data. Compared these to new data in order to look for changes due to aging and/or instrument handling. Quantified changes seen, such as contamination on the CCD.

Located & retrieved archival calibration data, test protocols, and reduction software for Mars

Polar Lander (MVACS) SSI and RAC cameras.

Designed test plans, procedures, analysis strategies, and analysis algorithms necessary to perform the above tests. Developed new software required to complete data analysis of final test results. Provided feedback and updates to members of calibration team.

Assisted in performing the above testing, including training of students. Restored, updated, and augmented the Mars Polar Lander SSI and RAC Instrument Calibration Report. Provided support at a Technical Interchange Meeting) and participated in PDR (Preliminary Design Review) of the SSI. This included Flight Requirements analysis for the two cameras, in addition to CCD data analysis.

[Senior Research Specialist](http://www.hr.arizona.edu/06_jcl/jobdesc/30320.php?var=30320), 1996–2003: Lunar & Planetary Laboratory, University of Arizona

Construction, calibration, and alignment of flight hardware (CCD cameras) for several NASA missions. Calibration includes design of apparatus, custom fixtures, and setups required to characterize a camera subsystem; image data acquisition and reduction; and incorporation of results into calibration reports. Tasks include both ambient (room-temperature, Class-5 clean room) conditions and thermal vacuum environmental chamber testing. Additional responsibilities encompass instrument flight-qualification, care and upkeep of the Clean Room Facility, and training of undergraduate assistants.

Camera characterizations include: dark current and bad pixel map, modulation transfer function/point-spread function, focus table, geometric distortion, stray light, spectral responsivity, pointing/backlash modeling, temperature sensor calibration, and EMF compatibility testing.

Other tasks include delivery to and interfacing with JPL and Lockheed/Martin System Test Labs, instrument integration with spacecraft at Kennedy Space Center, and field deployment of engineering/testbed cameras to terrestrial Mars-analog sites.

GRS tasks include: coding of an IDL-based spectrum reduction package, complete with error analysis; lead for GRS spatial efficiency map determination; spacecraft/planet geometry derivations for data reduction; lead (at LPL) for GRS cartographic products.

Missions and instruments:

* Mars Pathfinder: Imager for Mars Pathfinder (IMP)
* Mars Polar Lander Stereo Surface Imager and Robotic Arm Cameras
* Built prototype MIMI camera (Multispectral Imaging Microscope; not chosen for flight)
* Mars Odyssey Orbiter Gamma Ray Spectrometer
* Mars Phoenix Lander: Mars Environmental Compatibility Microscope and Robotic Arm Camera (RAC) Planetary protection, aging, contamination tasks; Stereo Surface Imager (SSI) PDR participant

[Engineer](http://www.hr.arizona.edu/06_jcl/jobdesc/30700.php?var=30700), 1995: Lunar & Planetary Laboratory, University of Arizona

Calibration of the Imager for Mars Pathfinder (IMP) Camera. Duties similar to above, but position was half-time. Camera returned 18,000 images of Martian surface and atmosphere.

[Applications System Analyst](http://www.hr.arizona.edu/06_jcl/jobdesc/71710.php?var=71710), 1992–1994: Lunar & Planetary Laboratory, University of Arizona

* Deployed portable telescopic observatory to remote sites. Observed several stellar occultations by solar system bodies using high-speed CCD photometry.
* Guest Observer at Mt. John Observatory, New Zealand. Observed Comet Shoemaker/Levy‑9 impacts into Jupiter as part of University of Arizona CINE collaboration.
* Technical translation of educational materials from English to Spanish.

[Adjunct Faculty Member](http://www.pima.edu/employee/classcomp/classes/class_assess/instructor.shtml), 1992–1994: Pima Community College, Tucson, Arizona

* Taught Astronomy 101, 102, 103, and 104 lecture and laboratory classes.
* Wrote syllabus for honors course for advanced undergraduates.
* Compiled a database of test questions for use in above courses.

JPL Postdoctoral Fellow, 1990–1992: Jet Propulsion Laboratory, Caltech, Pasadena, California

Conducted telescopic research program concentrating on Pluto, Charon, and Centaur objects 2060 Chiron and 5145 Pholus. Detectors used include CCD, InSb arrays and photomultiplier tubes.

Laboratory Instructor, 1989: Lunar & Planetary Laboratory, University of Arizona

Research Associate, 1986–1990: Lunar & Planetary Laboratory, University of Arizona

Research Assistant, 1983–1986: Lunar & Planetary Laboratory, University of Arizona

Research Assistant, 1981–1982: Arthur J. Dyer Observatory, Vanderbilt University

Laboratory Instructor, 1981–1983: Dept. of Physics & Astronomy, Vanderbilt University

Teaching Assistant, 1976–1980: Dept. of Earth & Planetary Sciences, M.I.T.

**Memberships:**

American Institute of Aeronautics and Astronautics (Senior Member)

ΣΠΣ (Sigma Pi Sigma; Physics Honorary)

American Astronomical Society (Division for Planetary Sciences)

American Association for the Advancement of Science

American Geophysical Union

Astronomical Society of the Pacific

Pluto/Charon Mutual Events Season Campaign founding member

Chiron at Perihelion Campaign founding member

Member, International Astronomical Union, Commissions B6, F2, and X2

**Awards:**

NASA Group Achievement Award, Mars Odyssey Project;

Gamma Ray Spectrometer Instrument Development Team, 2003

NASA Group Achievement Award, Mars Odyssey Project;

Mars Odyssey Project Development Team, 2002

NASA Group Achievement Award, Mars Pathfinder Project;

Imager for Mars Pathfinder Instrument Development Team, 1997

Inaugural JPL Postdoctoral Fellow, 1990

NASA Graduate Student Researchers Program Fellow, 1986–1989

Salutatorian, Nyack High School, Nyack, NY, Class of 1974

## Research Interests:

Pluto, Charon, and Triton 2060 Chiron

Icy satellites Outer solar system formation & evolution

Solar system photometry Occultation astronomy

*RS Canum Venaticorum* binary stars

**Certifications:**

1992: Lifetime Teaching Certificate, Arizona Community College Board:

Physics, Astronomy, and Physical Sciences

2002: Radiation Safety, Sealed Sources: University of Arizona

**Books and Book Chapters Co-authored:**

Marcialis, R.L. (2015) “The solar system.” In *Encyclopedia of Optical Engineering and Photonics,Second Edition* (C. Hoffman and R. Driggers, eds.), Taylor & Francis Publishing, New York, NY, in press.

Spanish Project Translation Board, Astronomical Society of the Pacific (2002) *El universo a sus pies*; (A. Fraknoi and D. Schatz, eds.), Project ASTRO Translation Project, 490 pp.

Marcialis, R.L. (2001) “Pluto.” In *Encyclopedia of Space Sciences, Vol. 2 Planetary Science and Astronomy* (P. Dasch, ed.), New York, Macmillan Reference USA, 147–151.

Marcialis, R.L. (2001) “The solar system.” In *Encyclopedia of Optical Engineering* (R. Driggers, ed.), Marcel-Dekker Publishing, New York, NY, 2591–2606.

Marcialis, R.L. (1997) “The first 50 years of Pluto–Charon research.” In *Pluto and Charon* (S.A. Stern and D.J. Tholen, eds.), University of Arizona Press, Tucson, AZ, 27–83.

Marcialis, R.L. (1997) “Introducing PLUBIB: a Pluto–Charon bibliography database.” In *Pluto and Charon* (S.A. Stern and D.J. Tholen, eds.), University of Arizona Press, Tucson, AZ, 665–671.

Marcialis, R.L. (1996) “The Pluto–Charon system.” In *Macmillan Encyclopedia of the Earth Sciences* (E.J. Dasch, ed.), Simon & Schuster–Macmillan Publishing, 870–973.

Mechler, G., Croft, S.K., Hutson, M., and Marcialis, R. (1995) *Planets and their moons*. National Audubon Society Pocket Guide, Chanticleer Press, 192 pp.

Mechler, G., Hutson, M., and Marcialis, R. (1995) *The Sun and the Moon*. National Audubon Society Pocket Guide, Chanticleer Press, 192 pp.

Greenberg, R., Croft, S.K., Janes, D.M., Kargel, J.S., Lebofsky, L.A., Lunine, J.I., Marcialis, R.L., Melosh, H.J., Ojakangas, G.W., and Strom, R.G. (1991) “Miranda.” In *Uranus*. (J.T. Bergstrahl, E.D. Miner, and M.S. Matthews, eds.), University of Arizona Press, Tucson, AZ, 693–735.

**Publications List:**

Available on-line at: <http://www.lpl.arizona.edu/~umpire/professional/lop.html>

<http://www.lpl.arizona.edu/~umpire/professional/lop.doc> .

**Computer Operating Systems, Languages, Software Packages:**

UNIX, Windows, DOS, CPM (stop laughing at that one)

Interactive Data Language (IDL), FORTRAN77, BASIC, Lotus 1-2-3, Microsoft Office, MONGO, TEX, LATEX, HTML, WordPerfect, General Mapping Tool (GMT)

**Community Service:**

NASA Planetary Astronomy Review Panel, 2001.

Advisor, Astronomical Society of the Pacific’s Project ASTRO Translation Project
Reviewer, NASA Planetary Astronomy Program, 1998–1999
Division for Planetary Sciences Program Committee, 1996
Division for Planetary Sciences Local Organizing Committee, 1996
Educational Counselor, Massachusetts Institute of Technology 1983–1992
American Red Cross Water Safety Instructor, 1981–1982

**Other Interests:**

Fastpitch Softball Umpire 1975–present

Registered, Amateur Softball Association of America 1982–present

Certified AIA Official 1993–present

NCAA Conferences worked:

PAC–12, ACCAC, Big West, Mountain West, WAC, CCCA, RMAC, C-USA, Lonestar, 1984–

ASA National Umpire School 1986, 1990, 2011

ASA Advanced National Umpire School 1994

ASA National Indicator Fraternity, 1988

ASA Medals Program, Gold level, 1999

About 200 games/year; 15 National Championships

Tucson Softball Umpires Association:

Committee Member, 1995–2001, Vice-President, 2001 President, 2002

Umpire, National Professional Fastpitch 2003–2007

[United States Soccer Federation](http://www.ussoccer.com) Referee Grade 8 (ID Number: 2014-0000-0248-9344)

This document is available on the World Wide Web, at:

<http://www.lpl.arizona.edu/~umpire/professional/vita3.doc>

<http://www.lpl.arizona.edu/~umpire/professional/vita3.html>

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