

# Curriculum Vitae

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Robert Hamilton Brown

Professor

*Department of Planetary Sciences  
Lunar and Planetary Laboratory  
University of Arizona  
Tucson, Arizona 85721*

## EDUCATION:

B.S.: Computer Science and Management, Purdue University, 1971

M.S.: Physics, Purdue University, 1975

M.S.: Astronomy, University of Hawaii, 1979

Ph.D.: Astronomy, University of Hawaii, 1982

## PROFESSIONAL EXPERIENCE:

### ***Present Position:***

Professor of planetary science and astronomy, specializing in planetary surface processes (a joint appointment in the University of Arizona, Department of Planetary Sciences, and Department of Astronomy) September 3, 1996-present

### ***Past Positions:***

Senior Research Scientist in the Small Bodies Research Element of the Division for Earth and Space Sciences at the Jet Propulsion Laboratory, California Institute of Technology, October 1995-August 1996. Member of technical staff, Jet Propulsion Laboratory, Caltech, January, 1985 to August, 1996.

Supervisor of the Planetary Physics and Astronomy Group, Earth and Space Sciences Division, JPL, October, 1992 to October, 1993.

Technical monitor, Cold Coronagraph (CoCo) project at JPL (Project completed, February, 1995)

Technical monitor, Bolometric Camera project at JPL (Project completed, January, 1994)

Technical monitor, Table Mountain Imaging Spectrometer project at JPL (1989-1992)

Member of the Voyager Imaging Science Team for the Voyager 2 encounter with Uranus and Neptune (1986-1990)

Member of the flight science team for the VIMS facility instrument on the Comet Rendezvous/Asteroid Flyby Mission (Mission canceled as of June, 1992)

January 1983-January 1985: Assistant Researcher, Planetary Geosciences Division, Hawaii Institute of Geophysics, University of Hawaii; Project Manager for the Mapping Reflectance Spectrometer; Member of the University of Hawaii support team for the NASA Galileo NIMS data analysis group; Section head of engineering facility, Planetary Geosciences Division, Hawaii Institute of Geophysics.

October 1979-December 1982: Graduate Research Assistant, Planetary Geosciences Division, Hawaii Institute of Geophysics.

June 1978-October 1979: Graduate Research Assistant, Institute for Astronomy, University of Hawaii.

January 1976-June 1978: Graduate Teaching Assistant, Department of Physics and Astronomy, University of Hawaii.

June 1974-December 1975--Graduate Teaching Assistant, Department of Physics, Purdue University

September 1971-December 1973--Director of Material Control, Dri-All Inc., Attica, Indiana

***Active Spacecraft Projects:***

Team Leader for the VIMS facility instrument on the Cassini Orbiter, November 1990-present

***Proposed Spacecraft Projects:***

Deputy Principal Investigator, The JET Mission, A Discovery-Class Titan Orbiter Proposal, 2010-2014.

***Academic/Student Advising Activities:***

Visiting associate professor of planetary science, Division of Geological and Planetary Sciences, California Institute of Technology, September, 1988 to August, 1989

Academic advisor for Ms. Ingrid Dauber, 1999-2001

Academic advisor for Mr. Matt Chamberlain, 2000-2002

Academic advisor for Mr. John Weirich 2003-2005

Academic advisor for Mr. Jason Barnes, 1999-2004

Academic advisor for Ms. Nicole Baugh, 2004-2008

Academic advisor for Mr. Eric Palmer, 2004-2009

Research advisor for Dr. Jacklyn R. Green, NASA Resident Research Associate, JPL, October, 1989-March, 1991

Research advisor for Dr. Natalia Duxbury, JPL Postdoctoral Research Associate, December 1991-1994

Research advisor for Dr. Andrew Rivkin, Lunar and Planetary Laboratory Post Doctoral Associate, 1998-2001

Research advisor for Dr. Jason Barnes, Lunar and Planetary Laboratory Post Doctoral Associate, 2005-2007

Research advisor for Dr. Jason Soderblom, Lunar and Planetary Laboratory Post Doctoral Associate, 2007-2010

Thesis advisor for Kimberly A. Tryka, graduate of the Division of Geological and Planetary Sciences at Caltech, October 1992-December, 1994

Thesis advisor for graduate student Rachel Mastrapa, Sept. 1997-2005

Co-Thesis advisor with Prof. J. Lunine for graduate student David Trilling, March 1997-April 1999

Thesis advisor for graduate student Josh Emery 1998-2003

Thesis advisor for graduate student Jason Barnes, 1999-2004

Thesis advisor for graduate student Eric Palmer, 2005-2010

**Past Spacecraft Experience:**

Member, Satellites Working Group, Voyager Imaging Science Team, for the Uranus and Neptune flybys (1986-1990).

Member, Satellites Working Group, Voyager Project Science Group, for the Uranus and Neptune flybys (1986-1990)

Member, Visual and Infrared Mapping Spectrometer (VIMS) Flight Science Team, Comet Rendezvous/Asteroid Flyby mission (1987-1992)

Member, steering group for the consolidated VIMS development project, CRAF and Cassini missions (1989-1990)

Co-investigator on the CIRCLE experiment of Rosetta (canceled as of September, 1996)

Member of the MICAS science team for the New Millennium Deep Space I Mission, 1997-2003

Member of the CIRCLE team for the New Millennium Deep Space 4 Mission, 1998-2001

**PROFESSIONAL ORGANIZATIONS:**

Member, American Astronomical Society

Member, International Astronomical Union

Member, American Geophysical Union

**PROFESSIONAL COMMITTEES, WORKSHOPS AND STUDY GROUPS:**

IRAS Asteroid workshops held in 1983 and 1984 at JPL in Pasadena, California: Member, data-products working group, workshop #2; Chair, thermal-modeling working group, workshops nos. 3 & 4.

Member, Local Organizing Committee for the 1984 meeting of the Division of Planetary Sciences of the American Astronomical Society, Kona, Hawaii, October, 1984.

Invited participant in the Remote Sensing Workshop, San Francisco, California, April 9-11, 1986

Member, Scientific Program Committee for the Uranus conference, June, 1988

Member, Nominating Committee for the DPS division of the American Astronomical Society 1988-1990

Chair, Nominating Committee for the Division of Planetary Sciences, 1990

Member, Planetary Astronomy Review Panel, NASA Planetary Astronomy program, 1987-1992

Chair, Planetary Astronomy Review Panel, Group C, "Charon, Pluto and Instrumentation", 1990; Chair of group B, "Instrumentation", 1991

Member, Time Allocation Committee, NASA Infrared Telescope Facility, Mauna Kea Observatory, spring 1988 to fall 1989.

Member, Lunar and Planetary Geology Review Panel, NASA PG&G program, 1988-1992

Chair, Lunar and Planetary Geology Review Panel, Group E, "Remote Sensing", 1991-1992

Chair, Astrophysics Data Program Review Panel, Subgroup 1, Solar System, February 1989

Member, Planetary Astronomy and Infrared Astronomy panels within the National Academy of Science's Astronomy and Astrophysics Survey Committee, fall 1989 to fall 1990

Member, Cassini Orbiter Review Panel, Satellites Subgroup, April, 1990

Member, Space Telescope Time Allocation Committee, Solar-system panel, 1991

Member, Committee of the Division of Planetary Sciences of the American Astronomical Society, 1991-1994

Member, Outer Planets Science Working Group, 1991-1994

Member, Planetary Geology and Geophysics Management Operations Working Group, 1992-1994

Member, NEAR Mission Review Panel, August, 1994

Member, *Earth, Moon and Planets* editorial board, 1994-present

Member, Keck Instruments Review panel, August 1997

Member, IRTF Time Allocation Committee, May 1998-2001

Member, Lunar and Planetary Institute, Science Council, January 1998-2000

Member, Astrophysical Analogs Working Group, Solar System Exploration Sub-committee, Aug. 1998-1999

Chair, Science Council, Lunar and Planetary Institute, 2001

Chair, Director Search Committee for the Lunar and Planetary Institute, 2001

Editor in Chief for the book *Titan from Cassini-Huygens*, Springer, Dordrecht, 2007-2009

Chair, Cassini Participating Scientist Program Study Group, 2010

Cassini Data Analysis Program, spectroscopy panel member, 2011; Chair, Cosmochemistry subpanel, 2013

## **INVITED PAPERS AND COLLOQUIA:**

Invited paper entitled, "Icy Satellites of Uranus" given for the NATO advanced-study workshop entitled, "Ices in the Solar System", Nice, France, Jan. 16-19, 1984.

Invited paper entitled, "Physical Properties of the Satellites of Uranus" given for the Voyager Uranus/Neptune Workshop, Jet Propulsion Lab, Pasadena, California, Feb. 6-8, 1984.

Invited paper entitled, "Ice on the Uranian satellites", given in the Planetary Ice Symposium at the fall 1985 meeting of the American Geophysical Union, San Francisco, California, Dec. 9-13, 1985.

Invited colloquium entitled, "The Uranian Satellites: A Pre-Voyager Perspective" given at the University of Arizona, Lunar and Planetary Laboratory, Nov. 19, 1985.

Invited colloquium entitled, "Preliminary Results of the Voyager 2 Encounter with Uranus" given at Purdue University, April 17, 1986.

Invited paper entitled: "Voyager Studies of the Uranian Satellites", given at the AIAA 25<sup>th</sup> Aerospace Sciences Meeting, Reno, Nevada January 12-15, 1987.

Invited colloquium entitled, "Solid-state Greenhouses on Icy Satellites", given at UCLA May 7, 1987.

Invited paper entitled: "Physical Properties of the Satellites of Uranus", given at the Uranus conference, Pasadena, California, June 27-29, 1988.

Invited colloquium entitled, "The Solid-State Greenhouse Effect for Icy Satellites", given at Purdue University, February 17, 1989.

Invited colloquium entitled, "Solid-state Greenhouses on Icy Satellites: Theory, Observations and Future

Work”, given at the Massachusetts Institute of Technology, March 9, 1990.

Invited paper entitled, “Volatile Ices in the Outer Solar System”, given at the Planetary Ices Symposium during the Spring 1990 meeting of the AGU.

Invited paper entitled, “Satellites of Neptune Post-Voyager”, given at the special Voyager session during the 1990 summer meeting of the American Astronomical Society.

Invited review entitled, “Triton One Year Later”, given at the annual meeting of the Division of Planetary Sciences of the AAS, October 22-26, 1990.

Invited review entitled, “Compositional and Photometric Properties of Triton”, given at the “Neptune” meeting, Tucson, Arizona, January 1992.

Invited colloquium entitled: “CoCo: A Cold Coronagraph for Planetary Observations”, given at the Department of Astronomy, University of Florida, March 1995.

Invited colloquium entitled: “Volatile transport on Triton”, given for the Theoretical Astrophysics Program colloquium series at Department of Astronomy, University of Arizona, October, 1997.

Invited talk entitled: “Kuiper Belts: Foreign and Domestic”, given at the Large Binocular Telescope conference, Ringberg Castle, Bavaria, July, 2000.

Invited talk given at the EGU meeting on the VIMS Jupiter flyby observations, March 2001.

Invited talk given at the Spring AGU on the VIMS Jupiter flyby observations, May 2001.

Invited talk about the physical properties of KBOs given at the KBO Workshop in Nice, France, June 2001.

Invited talk on the VIMS Jupiter flyby observations given at the “Galileo and Cassini at Jupiter” conference in Boulder, Colorado, June 2001

Invited talk on Cassini VIMS results given at the Huygen’s Symposium, ESTEC, Netherlands, 2003

Invited talk on Cassini VIMS results given at COSPAR, 2003

Invited talk on Cassini VIMS results given at DPS, 2003

Invited talk on Cassini VIMS results given at LPSC, 2005

Invited talk on Cassini VIMS results for Enceladus given at EGU meeting, Vienna, 2006

Invited talk on Titan’s polar caps given at Recontres de Blois, Blois, France, 2006

Invited talk on Titan’s geology given at EPSC, 2007

Invited talk on Titan’s Ontario Lacus given at EPSC, 2008

Invited talk on Enceladus given at EPSC, 2009

Invited talk on Triton given at COSPAR, 2010

Invited colloquium given at Purdue University, Department of Physics, entitled “Is Titan Earthlike”, April, 2010

Invited talk entitled: Geologically Active Icy Satellites, COSPAR, 2012

Invited talk entitled: Evaporative Isotopic Fractionation on Icy Bodies, to be given at the International Cometary Workshop, April 1-3, 2014, ISAE, Toulouse, France.

Invited talk entitled: 10 Years of VIMS at Saturn, given at the 2014 EGU meeting in Vienna, Austria.

## **AWARDS:**

**NASA Group Achievement Award** for imaging science during the Voyager 2 encounter with Uranus, January, 1986

**Director's Research Achievement Award** (now called the Lew Allen award), October, 1987, Jet Propulsion Laboratory for: "exceptional contributions to the study of satellites in the outer solar system and for leadership in developing research instrumentation for JPL's Table Mountain Observatory".

**Asteroid 3480 Abante**, February 1988. Citation: "Named in honor of Robert Hamilton Brown, planetary astronomer at the Jet Propulsion Laboratory. A pioneer in the study of the compositions of the satellites of Uranus, Brown has also contributed greatly to the development of the radiometric method of diameter determination for minor planets and satellites. He has been involved in several calibrations of the radiometric method using occultation diameters, and he has investigated the geometric assumptions by developing a generalized ellipsoidal radiometric model."

**NASA Group Achievement Award** for imaging science during the Voyager 2 encounter with Neptune, August, 1989.

**NASA Group Achievement Award** for the Cassini Program Visual and Infrared Mapping Spectrometer Team, April 1998

**NASA Group Achievement Award** for the Miniature-Integrated Camera Spectrometer Team on the New Millennium Deep Space 1 Mission, May, 1999.

**NASA Group Achievement Award** for Deep Space 1 Project Science Group on the New Millennium Deep Space 1 Mission, May, 1999.

**NASA Group Achievement Award** for the Deep Space 1 Comet Team on the New Millennium Deep Space 1 Mission, May, 2002.

**NASA Group Achievement Award** for the VIMS Investigation on the Cassini Orbiter, 2009

## **PUBLICATIONS:**

~220 refereed publications in various journals and conference proceedings. See separate list.