

## VITA: JAMES F. BELL III (JIM)

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### EDUCATION:

Ph.D.: 1992, University of Hawaii at Manoa; Planetary Geosciences  
M.S.: 1989, University of Hawaii at Manoa; Geology and Geophysics  
B.S.: 1987, California Institute of Technology; Planetary Science and Aeronautics

### PERSONAL INFORMATION:

Born: July 23, 1965, Providence RI; Citizenship: USA.

### FIELDS OF EXPERTISE:

- Surface composition and geology of terrestrial planets, moons, asteroids, comets
- Spacecraft instrumentation and operations (multispectral imaging and spectroscopy)
- Reflectance & emittance spectroscopy (telescopic, laboratory, spacecraft)
- Image processing and data reduction/calibration/analysis (telescopic, spacecraft)

### PROFESSIONAL EXPERIENCE:

2013- : Distinguished Visiting Scientist, NASA Jet Propulsion Laboratory/Caltech  
Since 2011 : Professor, School of Earth and Space Exploration, Arizona State University  
Since 2011 : Adjunct Professor, Department of Astronomy, Cornell University  
2009-2010 : Professor, Department of Astronomy, Cornell University  
2003-2008 : Associate Professor, Department of Astronomy, Cornell University  
2005: Visiting Scientist, CNRS/Observatoire Midi-Pyrénées, Toulouse, France  
1998-2003: Assistant Professor, Department of Astronomy, Cornell University  
1997 to 1998: Senior Research Associate, Department of Astronomy, Cornell  
1995 to 1997: Research Associate, Department of Astronomy, Cornell  
1994 to 1995: Postdoctoral Research Assistant, U. Washington Remote Sensing Lab  
1992 to 1994: NRC Postdoctoral Research Fellow, NASA Ames Research Center.  
1989 to 1992: NASA Graduate Student Researchers Program Fellow, NASA/JSC  
1987 to 1989: Graduate student researcher, U. Hawaii Planetary Geosciences Dept.  
1983 to 1987: Undergraduate researcher, Caltech Department of Planetary Sciences.

### PROFESSIONAL AFFILIATIONS:

American Astronomical Society (Division for Planetary Sciences)  
American Geophysical Union (Planetary Sciences Section)  
International Astronomical Union  
American Association for the Advancement of Science  
Geologic Society of America (Planetary Sciences Division)  
The Planetary Society (President: Board of Directors; 2008-)

**HONORS AND AWARDS:**

NASA Group Achievement Award, MSL/*Curiosity* Science Team, 2015  
 NASA Group Achievement Award, MSL/*Curiosity* Operations Team, 2013  
 Carl Sagan Medal for Excellence in Public Communication, AAS/DPS, 2011  
 NASA Group Achievement Award, MRO MARCI and CTX Science Team, 2011  
 NASA Group Achievement Award, Phoenix Mission Support Team, 2008  
 NASA Group Achievement Awards (2), MER 3rd & 4th Extended Missions, 2008  
 National Academy of Sciences Kavli Fellow, 2007  
 NASA Group Achievement Award, Mars Odyssey Primary Mission, 2006  
 National Air and Space Museum Trophy, Mars Exploration Rover Team, 2005  
 NASA Group Achievement Awards (2), MER 1st, 2nd Extended Missions, 2004-2005  
 NASA Group Achievement Awards (2), MER Primary Mission, 2004  
 NASA Group Achievement Award, NEAR/Eros mission, 2001  
 Awarded asteroid name [8146 Jimbell](#) by the IAU, 1999  
 Editor's Letter of Commendation, *Icarus*, 1997  
 NASA Group Achievement Award, Mars Pathfinder mission, 1997  
 NASA Group Achievement Award, NEAR/Mathilde flyby, 1997  
 Editor's Citation for Excellence in Refereeing, *J. Geophys. Res.*, 1996  
 NASA/National Research Council Postdoctoral Fellowship, 1992-1994  
 NASA Graduate Student Researcher's Program Fellowship, 1989-1992

**PROFESSIONAL ACTIVITIES:**

P.I., NASA Mars-2020 rover *Mastcam-Z* stereo imaging investigation, 2014-  
 Science Team Member: ESA JUICE mission JANUS camera team; 2013-  
 Science Team Member: ESA Mars Trace Gas Orbiter MAGIE camera team; 2010-2012  
 P.I., *Odysseus* New Frontiers Trojan asteroid mission (not accepted), 2009  
 Member: NASA Advisory Council, Planetary Sciences Subcommittee, 2009-2012  
 Participating Scientist: NASA Lunar Reconnaissance Orbiter LROC team, 2008-  
 Deputy P.I.: NASA Mars Science Laboratory Rover Mastcam camera system; 2005-  
 Participating Scientist: NASA Mars Odyssey THEMIS Investigation, 2002-  
 Science Team Member: NASA MRO MARCI/CTX team, 2003-  
 Pancam Payload Element Lead: NASA 2003 Mars Exploration Rover Missions, 1997-  
 Science Team Member: NASA CONTOUR Discovery Mission, 1997-2002  
 Participating Scientist: NASA Mars Pathfinder Mission, 1997-1998  
 Science Team Member: Mars-98 Orbiter MARCI Investigation, 1996-1999  
 Science Team Member, NASA Near Earth Asteroid Rendezvous Mission, 1994-2001  
 Guest Observer, ESA Infrared Space Observatory, 1995-1997  
 Guest Observer, NASA Hubble Space Telescope, 1994-2003  
 Visiting Astronomer, NASA Infrared Telescope Facility, 1988-1999

**PROFESSIONAL SERVICE:**

Member, NASA Human Exploration Mission Directorate (HEOMD) Asteroid Redirect  
 Mission (ARM) Formulation Assessment and Support Team (FAST), 2015  
 Member, Science Definition Team for the NASA Mars-2020 Rover mission, 2013  
 Study Team Member, *In Situ Instrumentation for Primitive Bodies*, Keck Institute for  
 Space Studies, 2012  
 Organizing Committee, *International Space Science Institute*, Quantifying the Martian  
 Geochemical Reservoirs; Workshop and Book, 2011-2012  
 Member, Mars Science Laboratory Participating Scientist Review Panel, 2011

Member, NASA ROSES Education and Outreach Review Panel, 2010-2011  
 Contributing Editor, *Sky & Telescope* magazine, 2011-  
 Member, NASA/JPL Mars Critical Data Products Program Review Panel, 2011  
 Chair, NASA Lunar Science Institute Review Panel, 2008  
 Member, Committee on the Review of Planetary Protection Requirements for Mars  
 Sample Return Missions; National Research Council, National Academy of  
 Sciences, 2008  
 Member then Chair, AAS/DPS Federal Relations Subcommittee, 2006-2008; 2008-2010  
 Member, NASA Planetary Data System Geosciences Node Advisory Group, 2008-  
 Member, National Academy of Sciences Committee on the Review of Planetary  
 Protection Requirements for Mars Sample Return Missions, 2008  
 Local Organizing Committee Co-Chair, 2008 AAS/DPS Conference, Ithaca  
 Member, NASA Mars Instrument Development Program Review Panel, 2007  
 Elected to AAS/DPS Committee, 2004-2006  
 Chair, NASA Mars Fundamental Research Program Review Panel, 2005  
 Editor, *Icarus* (International Journal of Solar System Studies), 1998-2010  
 Consulting Editor, Cambridge University Press Planetary Science book series, 2002-  
 NSF Planetary Astronomy Review panel, 2003  
 Group Chief, NASA Mars Scout '07 mission Review Panel, 2002  
 Group Chief, NASA Planetary Geology & Geophysics Review Panel, 2001-2002  
 Hubble Space Telescope Cycle 10 Review Panel (Solar System Committee), 2000  
 Group Chief, NASA Mars Data Analysis Program Review Panel, 2000  
 Member, NASA Planetary Astronomy NEO Program Review Panel, 2000  
 Program Committee Member, AAS/DPS annual meeting, Pasadena CA, 2000  
 Member, Italian Space Agency/NASA 2003 Mars Lander Instrument Review Panel, 1999  
 Member, NASA Mars Exploration Program Assessment Group (MEPAG), 1999-  
 Chair, NASA Mars-98 Participating Scientist Program Review Panel, 1999  
 Member, AAS Working Group on Professional-Amateur Collaboration, 1999-  
 Group Chief, NASA Mars Data Analysis Program Review Panel, 1998  
 Member, NASA Planetary Geology & Geophysics Program Review Panel, 1998  
 NASA Planetary Astronomy Program Management Operations Working Group, 1996-98  
 Eos Planetary Sciences Editor, AGU Weekly newspaper, 1997-1999  
 Member, NASA Mars Science Working Group (MarsSWG), 1996-1997  
 Member, SIRTf Solar System Working Group, 1996-  
 Member, SIRTf Large Projects/Survey Working Group, 1995-96  
 National Research Council Panel on Reducing Space Science Mission Costs, 1996  
 NASA Planetary Instrument Definition and Development Program Review Panel, 1995  
 Hubble Space Telescope Cycle 6 Review Panel (Solar System Committee), 1995  
 NASA Discovery Missions Review Panel, 1994  
 NASA Planetary Astronomy Review Panel, 1994  
 Lunar and Planetary Science Conference Program Committee, 1994-1995  
 Member, NASA MSATT Steering Committee, 1993  
 Member, NASA MECA, MEVTV, and MSATT Study Groups, 1988-1993

#### **TEACHING EXPERIENCE:**

SES 121/122: "Earth/Solar System/Universe" (Introductory, majors), 2014-  
 SES 494/598: "Commercial Opportunities in Space", 2014-  
 Geology/Astronomy 598: "Dissecting the Decadal Survey," ASU, Spring 2012  
 Astronomy 111, "Introduction to Solar System Astronomy," ASU, Fall 2011

Astronomy 310, "Planetary Image Processing", Cornell, Fall 2002, '05, '07, '09  
 Astronomy/EAS 577, "Planetary Surface Processes," Cornell, Spring 2007, 2009  
 Astronomy 102, "Our Solar System", Cornell University, Spring 2001, 2002  
 Astronomy 202, "Our Home in the Solar System", Cornell, Spring 1998, '99, '00, '08  
 Astronomy 7671/EAS 7310, "Lunar Science and Exploration", Cornell, Fall 2009  
 Astronomy 410, "Experimental Astronomy", Cornell, Fall 2005, 2006  
 Astronomy 671/EAS 693, "The Martian Surface", Cornell, Spring 2008  
 Astronomy 671, "Spectroscopy of Planetary Surfaces", Cornell, Fall 2001  
 Astronomy 671, "Asteroids", Cornell, Fall 2000  
 Astronomy 101, "The Nature of the Universe", Cornell University, Fall 1998  
 BioG 101-106 "Explorations" Program, Cornell University, Spring 2000, 2001  
 Fieldwork in Human Development 402 (Service learning/outreach course), 2007, '08, '09

### **DEPARTMENT/UNIVERSITY FACULTY SERVICE**

ASU/SESE Exploration Postdoctoral Fellowship evaluation committee, 2013  
 ASU/SESE Graduate Admissions Committee, 2011-2012  
 ASU/SESE Faculty search committees (2), 2012-2013  
 Cornell Graduate School General Committee member (elected) 2008-2010  
 Cornell West Campus Council Advisory Committee, 2008-  
 Johnson Museum of Art Faculty Advisory Committee, 2007-  
 Cornell Frank H.T. Rhodes Visiting Professorship advisory committee, 2007-  
 Faculty Fellow for Cornell's Becker House student dormitory, 2006-  
 Director of Graduate Studies, Cornell Astronomy & Space Sciences, 2005-2009  
 Member of Graduate Field, Cornell Dept. of Geological Sciences, 2004-  
 Astronomy Department Academic Integrity Committee representative, 2001-  
 Astronomy Department representative to the Physical Sciences Library, 2002-2004  
 Astronomy Department Colloquium Committee, 2002-2003  
 Astronomy Department Course Committee, '00-'01, '03-'04  
 Cornell Palomar TAC Member, 1999-2001  
 Advisor: ~30 undergraduates (Arts & Sciences), 1998-2009  
 Thesis Advisor: 6 graduate students (Astronomy & Space Sciences), 1998-2009  
 Minor Advisor: 3 graduate students (Computer Science, Geology), 1998-2009  
 Committee Member: 8 other graduate students (Astronomy & Space Sciences)  
 Astronomy Department Representative for College Admissions, 1999, 2005  
 Astronomy Department First Year Graduate Student Committee, 1999-2000  
 Faculty Advisor, Cornell HEDS-UP, SEDS, Moonbuggy student teams, 1999-2000  
 Faculty Sponsor for Frank H.T. Rhodes Class of '56 Univ. Professor Bill Nye, '00-'05

### **EDUCATION, OUTREACH, AND COMMUNITY ACTIVITIES:**

Science Consultant for PBS "Nova" television series and WNYC radio  
 Faculty Advisor for Cornell and now ASU student SEDS chapter  
 Faculty Fellow In Service Awardee, Cornell HD402 service course (with Prof. C. Hazan)  
 Mentor/Advisor: Athena Mars Rover K-12 outreach program; Member: JPL/NASA Mars Education and Outreach Advisory Board; Volunteer at the Sciencenter, Ithaca. Projects include assistance with Sagan Planetwalk, Mars exhibit, slide shows, and newsletters; Organizer of teacher workshops for Tompkins County educators (in cooperation with the Sciencenter) in order to promote increased science education in the K-12 classroom; Numerous talks to Elementary and High School students and community, religious, and civic groups around the country about astronomy and planetary sciences.

## INVITED TALKS/LECTURES

Keck Institute for Space Studies; Smithsonian Air and Space Museum; National Academy of Sciences Kavli Program, Space Telescope Science Institute; American Museum of Natural History; Rochester Museum and Science Center; Argonne Laboratories; Buffalo Science Museum; Boston Museum of Science; Miami Museum of Science; MIT, Caltech, U. Washington; U. Colorado; U.C. Santa Cruz; U. Virginia; Science Museum of Minnesota; Denver Museum of Nature and Science; Elmira Wings of Eagles Museum; NYC 92nd St. Y; Cornell Olin Lecture; Georgia Tech

## TECHNICAL EXPERIENCE

Instrumentation: Proficiency with laboratory and telescopic VIS-IR spectrometers and Near-IR and CCD cameras. 90+ nights observing experience on large telescopes at Mauna Kea, Wyoming, Lick, Lowell, Palomar, and Pic du Midi observatories, plus experience with HST and ISO. Lab experience: reflectance, emittance, and Mössbauer spectrometers, magnetometers, and water evolution analysis; Machine shop work (NC mill, lathe, etc.) and familiarity with electronic testing equipment.

Computer/Software: Proficiency in Unix/Linux on a variety of platforms. Programming proficiency in IDL, and experience with IRAF, ISIS, and ENVI. Proficiency in some workstation system administration and with Mac and Windows PCs.

## LANGUAGES

French (3 years high school), Russian (1 year college), Rhode Islandese (18 years)

## HOBBIES AND INTERESTS

Softball, Woodworking, Hiking, Photography, Hawaiian Outrigger Canoe

## PUBLICATIONS

- 37 first-authored, peer-reviewed publications from 1989-2013
- Author of 5 popular science books and editor of 2 professional reference books
- Author of more than 75 popular science magazine articles, web blogs, and podcasts
- Co-author on 34 peer-reviewed papers by my graduate students and postdocs
- Co-author on 154 other peer-reviewed publications
- First author or co-author on 594 abstracts and conference presentations

Full publication list online at <http://jimbellsese.asu.edu/publications>

Current Google Scholar h-index: 55 (Since 2008: 36)

Five highest impact peer-reviewed first-authored publications:

Bell III, J.F. *et al.*, The Mars Exploration Rover Athena Panoramic Camera (Pancam) Investigation, *J. Geophys. Res.*, 108 (E12), [doi:10.1029/2003JE002070](https://doi.org/10.1029/2003JE002070), 2003.

Bell III, J.F., *et al.*, Mineralogic and Compositional Properties of Martian Soil and Dust: Results From Mars Pathfinder, *J. Geophys. Res.*, 105, 1721-1755, [doi:10.1029/1999JE001060](https://doi.org/10.1029/1999JE001060), 2000.

Bell III, J.F., M.J. Wolff, P.B. James, R.T. Clancy, S.W. Lee, and L.J. Martin, Mars surface mineralogy from Hubble Space Telescope imaging during 1994-1995:

- Observations, calibration, and initial results, *J. Geophys. Res.*, *102*, 9109-9123, [doi:10.1029/96JE03990](https://doi.org/10.1029/96JE03990), 1997.
- Bell III, J.F., Iron, sulfate, carbonate, and hydrated minerals on Mars, in "Mineral Spectroscopy: A Tribute to Roger G. Burns," *Geochemical Society Special Publication 5* (M.D. Dyar, C. McCammon, and M.W. Schaefer, eds.), 359-380, 1996.
- Bell III, J.F., T.B. McCord, and P.D. Owensby, Observational Evidence of crystalline iron oxides on Mars, *J. Geophys. Res.*, *95*, 14447-14461, 1990.