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EDUCATION

A.B.: May, 1966, Colgate University (physics).

M.A.: May, 1968, Rice University (geology).

Ph.D.: May, 1970, Rice University (geology).

SCIENTIFIC WORK

- Most research has been on the petrology and chemistry of lunar samples and meteorites to understand the origin and evolution of the solar system and the planets in it.
- Studies geared to understanding the processes involved in planetary formation and evolution, including nebular and parent body alteration, impact, accretion, and core formation.
- Recent meteorite research focuses on the nature of Martian volcanism as revealed by SNC meteorites and aqueous alteration in SNC meteorites.
- Evolution of the Martian crust as determined from geochemical mapping using data from Mars Odyssey, and theoretical investigations of igneous and aqueous processes.
- Lunar research has concentrated on the nature and formation of mare basalt magmas, the origin of igneous lithologies in the lunar highlands, and the bulk composition of the Moon.
- Actively involved in planning future missions to Mars and the Moon, and in the use of robotics for field geological studies.

POSITIONS HELD

1990–present: *Professor*, Planetary Geosciences, Hawai'i Institute of Geophysics and Planetology, University of Hawai'i at Manoa

1998–2002: *Director*, Hawai'i Space Grant Consortium

1986–1990: *Assistant Director*, Institute of Meteoritics

1976–1990: *Senior Research Scientist*, Institute of Meteoritics and Department of Geology, University of New Mexico, Albuquerque, New Mexico

1973–1976: *Assistant Professor*, Department of Earth and Planetary Sciences, Washington University, St. Louis, Missouri

1970–1973: *Postdoctoral Fellow*, Smithsonian Astrophysical Observatory and Harvard College Observatory, Cambridge, Massachusetts

AWARDS

- Harvey Picker Physics Prize, Colgate University, 1966.
- Ninninger Meteorite Prize, 1968.
- Sigma Xi Award for Graduate Research, Rice University, 1970.
- *A Close Look at the Moon* selected as one of the outstanding science books for children in 1980 by the National Science Teachers Association and the National Book Council.
- *Volcanoes in Our Solar System* selected as one of the outstanding science books for children in 1983 by the National Science Teachers Association and the National Book Council.
- Carl Sagan Medal for Excellence in Public Communications in Planetary Science, 2008
- Shoemaker Distinguished Lunar Scientist Award (NASA Lunar Science Inst.), 2011

CORPORATE BOARDS

- Member (2001–2011), Board of Directors, Space Resources Roundtable, Inc.
- Member (2018–present), Science Advisory Board, Blue Moon Project, Blue Origin, LLC

NATIONAL COMMITTEES

- NASA Review Panels: 35 (8 as member, 3 as Group Chief, 24 as panel Chair).
- Member (2001–2011), Board of Directors, Space Resources Roundtable, Inc.
- Member (1980–1986) and Chair (1986–1989), Lunar and Planetary Sample Team (NASA).
- Member (1984–1986), Lunar Base Steering Committee (NASA).
- Member (1985–1986), Lunar Geosciences Observer Working Group (JPL).
- Member (1985–1986), Near-Earth Asteroid Rendezvous Working Group (JPL).
- Member (1987–1990), Committee on Planetary and Lunar Exploration (NAS).
- Member (1988–1992), Lunar Exploration Science Working Group (NASA).
- Chair (1992–1994) Lunar Exploration Science Working Group (NASA).
- Member (1992–1994), Solar System Exploration Subcommittee (NASA).
- Member (1994–1996), Terrestrial Planetary Bodies Science Working Group (NASA).
- Chair (1996–1999), Research Outreach Coordination Group (NASA).
- Member (1998–2001), Cosmochemistry Program Management Operations Working Group (NASA).
- Member (2000–2002), Executive Committee, National Space Grant Directors Council
- Member (2000–2002), Board of Directors, National Space Grant Foundation
- Member (2002–2003), Mars Surface Laboratory Science Advisory Group (NASA), and then MSL Payload Science Integration Group.
- Chair (2003–2004), Goals Revision Committee (Mars Exploration Program Analysis Group, NASA/JPL)
- Member (2005), Robotic and Lunar Exploration Strategy Roadmapping Committee (NASA)
- Co-Chair (2005), Human Exploration Systems and Mobility Capabilities Road-mapping Team (NASA)
- Chair (2005–2007), Member of Executive Committee (2007–2010), Lunar Exploration Analysis Group (NASA).
- Member Curation and Analysis Planning Group for Extraterrestrial Materials (CAPTEM), 2014 to present.
- Member, Lunar allocation subcommittee of CAPTEM, 2014 to present.

UNIVERSITY COMMITTEES

- University Ethics Committee (2009 to 2016)
- Member and Chair about half the time, HIGP Faculty Review and Personnel Committees (1994–1995, 2004, 2006–2008, 2010, 2012–2017)
- Chair, two Tenure Promotion Review Committees and member of another (2005, 2012, 2015)
- Graduate admissions committee, Department of Geology and Geophysics (1991–1996, 2001–2002; Chair in 1997–1998)
- Graduate studies committee, Department of Geology and Geophysics (1999)
- SOEST Young Investigators Selection Committee (chair 1996–1997)

TEACHING

- Petrologic Evolution of the Moon and Mars (GG 673C), 2006, 2009, 2011, 2013, 2015, 2017
- Accelerated Introduction to Geology (GG 611), Fall, 2005, 2007, 2010, 2014, 2015, 2016, 2017 (Team taught)
- GG 710, Selected topics: Energy from Earth and Space, Spring 2005
- GG 711, Aqueous alteration in the solar system (co-taught with Sasha Krot), Spring 2011
- GG 711, Survey of Planetary Geoscience, Spring 2011, team taught.
- GG 699 (average of one graduate student each year)

STUDENT THESIS AND DISSERTATION COMMITTEES

Ph.D. Comprehensive exam committees: 37 (about 15 as Chair)

Ph.D. and MS thesis and dissertation committees: 30 (10 as Chair)

Extramural Funding as P.I.

Total funding since arrival at UH in July 1990: \$6.5 Million

Current active and continuing grants:

Planetary Sciences Research Discoveries, \$459,859 (7/6/16 – 7/5/20)

XXTRA: An eXtra Terrestrial Regolith Analyzer for Lunar Soil, \$349,259 (1/1/19-12/31/21), via a grant to David Blake at NASA Ames Research Center.