GWENDOLYN D. BART

RESEARCH PROFESSOR, UNIVERSITY OF IDAHO, DEPARTMENT OF PHYSICS

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EDUCATION

- Ph.D., Planetary Science, University of Arizona (UofA), Tucson, AZ, USA. (2007)
- B.S., Chemistry, University of California, Santa Barbara (UCSB), USA. (1998)

EMPLOYMENT

- University of Idaho, Department of Physics, Assistant Research Professor (Aug 2008-present)
- SETI Institute, Carl Sagan Center, Research Scientist (March 2008-Oct 2009)

I have been employed for approximately **30 full-time-equivalant-months** between graduation and Sept 2012.

RESEARCH INTERESTS

My primary research interest is in the field of planetary science. Specifically, I study the physics of the impact cratering process, the physical effect of impacts on their target surfaces, and the history of the target bodies as revealed by impact craters.

PUBLICATIONS

Although my legal name is Gwen Barnes, I publish professionally under the name **G.D. Bart**. Names of students I have supervised are listed in green.

10. **Bart, G.D.** (2013) The Quantitative Relationship Between Small Impact Crater Morphology and Regolith Depth. *Icarus,* submitted.

9. **Bart, G.D.**, R.D. Nickerson, M.T. Lawder, H.J. Melosh. (2011) Global Survey of Lunar Regolith Depths. *Icarus*, **215**, 485-490, doi: 10.1016/j.icarus.2011.07.017.

8. **Bart, G.D.**, H.J. Melosh. (2010) Distributions of Boulders Ejected from Lunar Craters. *Icarus,* **209,** 337-357, doi: 10.1016/j.icarus.2010.05.023.

7. **Bart, G.D.**, H.J. Melosh. (2010) Impact Into Lunar Regolith Inhibits High Velocity Ejection of Large Blocks. *J. Geophysical Research.* **115**, E08004, doi: 10.1029/2009JE003441l.

6. Colaprete, A., P. Schultz, J. Heldmann, M Shirley, K Ennico, B Hermalyn, D Wooden, W Marshall, A Ricco, RC Elphic, D Goldstein, D Summy, **G.D. Bart**, E Asphaug, D Korycansky, D Landis, L Sollitt. (2010) The Detection of Water Within the LCROSS Ejecta Plume. *Science,* **330**, 463-468, doi: 10.1126/science.1186986.

5. **Bart, G.D.**, H.J. Melosh. (2007) Using Lunar Boulders to Distinguish Primary Rrom Distant Secondary Impact Craters. *Geophysical Research Letters,* **34,** L07203, doi: 10.1029/2007GL029306.

4. **Bart, G.D.** (2007) Comparison of Small Lunar Landslides and Martian Gullies. *Icarus* **187,** 417-421, doi: 10.1016/j.icarus.2006.11.004.

3. **Bart, G.D.**, E.P. Turtle, W.L. Jaeger, L.P. Keszthelyi, R. Greenberg. (2004) Ridges and Tidal Stress on Io. *Icarus,* **169,** 111-126, doi: 10.1016/j.icarus.2004.01.003.

2. Greenberg, R., G.V. Hoppa, **G.D. Bart,** T.A. Hurford. (2003) Tidal Stress Patterns on Europa's Crust. *Celestial Mechanics,* **87**, 171-188, doi: 10.1023/A:1026169424511.

1. Works, C. F., C.J. Jocher, **G.D. Bart**, X. Bu, P.C. Ford. (2002) Photochemical Nitric Oxide Precursors: Synthesis, Photochemistry, and Ligand Substitution Kinetics of Ruthenium Salen Nitrosyl and Ruthenium Salophen Nitrosyl Complexes. *Inorganic Chemistry* **41**, 3728-3739, doi: 10.1021/ic020248k.

INVITED TALKS

7. "NASA's Lunar Science Institute: How Can UIdaho Participate?" University of Idaho, Department of Physics, colloquium. Oct 31, 2011, in Moscow, ID.

6. "Global Survey of Lunar Regolith Depths." University of Idaho, Department of Physics, colloquium. November 1, 2010, in Moscow, ID.

5. "Global Survey of Lunar Regolith Depths." Washington State University, Department of Physics, colloquium. October 19, 2010, in Pullman, WA.

4. "Water on the Moon." University of Idaho, Department of Physics, colloquium. April 19, 2010, in Moscow, ID.

3. "Impact Cratering on the Moon and Mars." University of Idaho, Department of Physics, collqiuum. February 9, 2009, in Moscow, ID.

2. "An Overview of the Lunar Crater Observation and Sensing Satellite (LCROSS) Mission - An ESMD Mission to Investigate Lunar Polar Hydrogen." Joint Annual Meeting of LEAG-ICEUM-SRR, held October 28-31, 2008 in Cape Canaveral, Florida.

1. "Impact Cratering on the Moon and Mars." University of Idaho, Department of Geological Sciences, colloquium. September 25, 2008, in Moscow, ID.

CONTRIBUTED PRESENTATIONS

33. **Bart, G.D.**; Nickerson, R.D.; Johnson, A.C. (October 2011) Tycho Secondary Craters Identified Via Ejected Boulders. *Geological Society of America Annual Meeting*, Minneapolis, MN.

32. **Bart, G. D.**; Nickerson, R. D.; Lawder, M. T. (July 2011) Lunar Regolith Depth Correlates with Lunar Geologic Units. *4th Lunar Science Forum*, NASA Ames Research Center, CA.

31. **Bart, G. D.**; Nickerson, R. D.; Lawder, M. T. (March 2011) Geologic Unit Differences are Reflected by Lunar Regolith Depths. *42nd Lunar and Planetary Science Conference,* The Woodlands, TX, abstract #2597.

30. Nickerson, R. D.; **Bart, G. D.**; Lawder, M. T.; Melosh, H. J. (March 2011) Global Lunar Regolith Depths Revealed. *42nd Lunar and Planetary Science Conference,* The Woodlands, TX, abstract #2607.

29. Lawder, M.T., **G.D. Bart**, R.D. Nickerson. (December 2010) Measuring Regolith Depth across the Lunar Surface. *American Geophysical Union Fall Meeting,* San Fransisco, CA, abstract #P53A-1503.

28. **Bart, G.D.**; R.D. Nickerson, M.T. Lawder. (October 2010) Lunar Regolith Depths from LROC Images. *American Astronomical Society Division for Planetary Sciences meeting,* Pasadena, CA, abstract #21.11.

27. **Bart, G.D.** (July 2010) Global Survey of Lunar Regolith Depth. *3rd Lunar Science Forum*, NASA Ames Research Center, CA.

26. Colaprete, A., K. Ennico, D. Wooden, M. Shirley, J. Heldmann, W. Marshall, L. Sollitt, E. Asphaug, D. Korycansky, P. Schultz, B. Hermalyn, K. Galal, **G.D. Bart**, D. Goldstein, D. Summy. (March 2010) Water and More: An Overview of LCROSS Impact Results. *Lunar and Planetary Science Conference,* Houston, TX, abstract #2335.

25. Colaprete, A., G. Briggs, K. Ennico, D. Wooden, J. Heldmann, L. Sollitt, E. Asphaug, D. Korycansky, P. Schultz, A. Christensen, K. Galal, **G.D. Bart**, LCROSS Team. (November 2009) An Overview of the Lunar Crater Observation and Sensing Satellite (LCROSS) Mission Results from Swing-by and Impact. *Lunar Exploration Analysis Group meeting,* Houston, TX, abstract #2064.

24. **Bart, G.D.**, H. J. Melosh. (July 2009) High Velocity Ejection of Large Blocks Inhibited by Impact Into Lunar Regolith. *2nd Lunar Science Forum*, NASA Ames Research Center, CA.

23. **Bart, G.D.,** A. Colaprete. (June 2009) The Importance of LRO Observations to the LCROSS Mission. *Lunar Reconnaissance Orbiter Science Targeting Meeting*, Tempe, AZ.

22. **Bart, G.D.**, Colaprete, A. (May 2009) NASA's LCROSS Mission and the Search for Water Ice on the Moon. *Annual Meeting of the Northwest Section of the American Physical Society,* Vancouver, BC, Canada, abstract #BAPS.2009.NWS.B1.13.

21. **Bart, G.D.**, A. Colaprete. (March 2009) Shadow Depths and Other Characteristics of Potential LCROSS Impact Sites. *Lunar and Planetary Science Conference,* Houston, TX, abstract #2151.

20. Colaprete, A., G. Briggs, K. Ennico, D. Wooden, J. Heldmann, L. Sollitt, E. Asphaug, D. Korycansky, P. Schultz, A. Christensen, K. Galal, **G.D. Bart**, LCROSS Team. (March 2009) An Overview of the Lunar Crater Observation and Sensing Satellite (LCROSS) Mission – An ESMD Mission to Investigate Lunar Polar Hydrogen. *Lunar and Planetary Science Conference,* Houston, TX, abstract #1861.

19. **Bart, G.D.**, A. Colaprete. (November 2008) LCROSS: Implications for a Lunar Cataclysm. *Workshop on the Early Solar System Impact Bombardment,* Houston, TX.

18. **Bart, G.D.**, A. Colaprete. (October 2008) Characterizing the LCROSS Impact Site. *Lunar Exploration Analysis Group meeting,* Cape Canaveral, FL.

17. **Bart, G.D.**, A. Colaprete. (September 2008) Selection and Characterization of the LCROSS Impact Site. *American Astronomical Society Division for Planetary Sciences meeting,* Ithaca, NY, abstract #32.15.

16. **Bart, G.D.**, A. Colaprete. (July 2008) LCROSS Impact Site Characterization. *1st Lunar Science Forum,* NASA Ames Research Center, CA, abstract #2037.

15. **Bart, G.D.**, A. Colaprete. (March 2008) LCROSS Impact Site Characterization. *39th Lunar and Planetary Science Conference,* Houston, TX, abstract #2225.

14. **Bart, G.D.**, H.J. Melosh (March 2008) Identifying Martian Secondary Craters by Their Ejected Boulders. *39th Lunar and Planetary Science Conference*, Houston, TX, abstract #1461.

13. **Bart, G.D.**, H. J. Melosh. (December 2007) Maximum Velocity of a Boulder Ejected From an Impact Crater Formed on a Regolith Covered Surface. *American Geophysical Union Fall Meeting,* San Fransisco, CA, abstract #U22A-07.

12. **Bart, G.D.**, H. J. Melosh. (March 2007) Boulders Untangle Primary from Secondary Craters. *Lunar and Planetary Science Conference,* Houston, TX, abstract #1501.

11. **Bart, G.D.**, H.J. Melosh. (September 2006) Boulders Ejected From Small Impact Craters. *American Astronomical Society Division for Planetary Sciences meeting,* Pasadena, CA, abstract #49.02.

10. **Bart, G.D.** (March 2006) Comparison of Martian Gullies and Lunar Crater-Wall Landslides. *Lunar and Planetary Science Conference,* Houston, TX, abstract #1345.

9. **Bart, G.D.**, H. J. Melosh. (August 2005) Lunar Far Side Regolith Depth. *American Astronomical Society Division for Planetary Sciences meeting*, Cambridge, England, abstract #57.07.

8. **Bart, G. D.**, H. J. Melosh. (March 2005) Ejected Boulders: Implications for Secondary Craters and the Age Dating of Surfaces. *Lunar and Planetary Science Conference*, Houston, TX, abstract #2022.

7. **Bart, G.D.**, H.J. Melosh, R.G. Strom. (November 2004) Characterization of Boulders Ejected from Small Impact Craters. *American Astronomical Society Division for Planetary Sciences meeting*, Louisville, KY, abstract #39.04.

6. **Bart, G.D.,** H. J. Melosh. (March 2004) Low Velocity Ejection of Boulders from Small Lunar Craters: Ground Truth for Asteroid Surfaces. *Lunar and Planetary Science Conference*, Houston, TX, abstract #1906.

5. **Bart, G.D.**, E.P. Turtle, W.L. Jaeger, L.P. Keszthelyi, R. Greenberg. (September 2003). Possible Surface Effects of Tidal Stress on Io. *American Astronomical Society Division for Planetary Sciences meeting,* Monterey, CA, abstract #02.04.

4. **Bart, G.D.**, R. Greenberg, G.V. Hoppa. (March 2003). Cycloids and Wedges: Global Patterns from Tidal Stress on Europa. *Lunar and Planetary Science Conference,* Houston, TX, abstract #1396.

3. **Bart, G.D.**, R. Greenberg, G.V. Hoppa, T.A. Hurford. (September 2002) Global patterns of diurnal tensile cracking on Europa. *American Astronomical Society Division for Planetary Sciences meeting,* Birmingham, AL, abstract #41.02.

2. Swindle, T. D.; Olson, E. K.; **Bart, G.** (September 2001) Searching for Evidence of Extinct 36-Chlorine in Efremovka. *64th Meteoritical Society Meeting*, Rome, Italy, abstract #5084.

1. **Bart, G. D.,** T.D. Swindle, E.K. Olson, A.H. Treiman. (March 2001) Xenon and Krypton in Nakhla Mineral Separates. *Lunar and Planetary Science Conference*, Houston, TX, abstract #1363.

GRANT SUPPORT

Grants Funded

1. **Source:** Mars Data Analysis Program (MDAP), NASA
   Title: Martian Surface Structure and Age from Impact Crater Analysis
   PI: G. D. Bart (UIdaho)
   Co-I: none
   Collaborators: Alfred McEwen, Ingrid Daubar-Spitale
   Award Amount: $160,117 total over 2 years ($160,117 to Bart)
   Period Covered by Award: Aug 2011–July 2014
   Type: external, competed, PI
   Status: current

2. **Source:** Lunar Advanced Science and Exploration Research (LASER), NASA
   Title: Lunar Surface Structure and Age from Impact Crater Analysis

PI: G. D. Bart (UIdaho)
Co-I: none
Collaborator: Jay Melosh
Award Amount:
Period Covered by Award: Oct 2008–Sept 2012
Type: external, competed, PI
Status: expired

Grants Pending

These grants have been submitted but no funding decision has yet been made by the agency.

1. **Source:** Mars Fundamental Research Program (MFRP), NASA
   Title: Effects of Near Surface Layering on Martian Crater Excavation and Morphology
   PI: **G.D. Bart**
   Collaborator: G. Collins

2. **Source:** Lunar Advanced Science and Exploration Research (LASER), NASA
   Title: Characterizing the Age, Regolith, and Composition of Eastern South Pole-Aitken Basin
   PI: N.E. Petro
   Co-I: **G.D. Bart** and others

TEACHING EXPERIENCE

2012	General Astronomy, University of Idaho
2005	Intro to Chemistry, Pima Community College, Northwest Campus, Tucson, AZ

STUDENTS MENTORED

2013	research advisor	Luke Spinolo	physics REU student
2012	research advisor	Rebecca Wizner	physics undergraduate
2012	research advisor	Rachael Hachadorian	physics REU student
2012	committee member	Emily Martin	geology (Ph.D)
2012	committee member	Casey Cook	physics (MS)
2012-2010	research advisor	Ryan Nickerson	physics undergraduate
2012-2010	committee member	Graham Vixie	physics (Ph.D.)
2011	research advisor	Andrew Johnson	physics REU student
2010	research advisor	Matthew Lawder	physics REU student
2010	committee member	Jonathan Kay	geology (MS)
2009	research advisor	Raechel Bianchetti	geography (MS)
2009	research advisor	Eric Petersen	physics REU student

SERVICE TO SCIENTIFIC COMMUNITY

2013	Served on the Cassini Data Analysis (CDAPS) grant review panel.
2012	Served on the Outer Planets Research (OPR) grant review panel.
2011	Served on Scientific Organizing Committee, *4th Lunar Science Forum*, NASA Ames Research Center, CA.
2011-2009	Served as judge for Lunar and Planetary Science Conference Dwornik Student Presentation Awards.
2010	Served as session chair for Geology session, *3rd Lunar Science Forum*. July 2010 at Moffett Field, CA.
2010	Selected the lunar impact location for the LCROSS spacecraft, in conjunction with the LCROSS team.
2009	Served on the NASA Lunar Advanced Science and Exploration Research program (LASER) grant review panel.
2008	Served on grant review panel for the NASA Lunar Science Institute.
2007	Served on NASA Mars Data Analysis Program (MDAP) grant review panel.

EDITORIAL SERVICE

Served as scientific reviewer for the following journals/editors:

Journal of Geophysical Research, Mark Wieczorek, editor. (2013 June)
Earth and Planetary Science Letters, Lars Stixrude, editor. (2013 May)
Journal of Geophysical Research Planets, Jeffrey Plescia, editor. (2012 August)
The Mars Journal, David Paige, editor. (2012 August)
Earth and Planetary Science Letters, Lars P. Stixrude, editor. (2011 December)
Icarus, Oded Aharonson, editor. (2011 July) .
Journal of Geophysical Research Planets , Sarah Stewart, editor. (2011 January)
Planetary and Space Science, R. Schultz, editor. (2010)
Geophysical Research Letters, Fabio Florindo, editor. (2009)
Planetary and Space Science, R. Schulz, editor. (2008)
Icarus, Jim Bell, editor. (2008)

SERVICE TO UNIVERSITY AND DEPARTMENT

University of Idaho

2012-2009	Organized interdepartmental planetary science research discussions.
2012-2009	Served as a student mentor for the Univ. of Idaho, Dept. of Physics REU program.
2010	Served as a judge for the UIdaho College of Science Student Research Exposition.
2010	Presentation to the Palouse Astronomical Society about NASA's LCROSS mission.

2009	Served as a mentor for a student in the Univ. of Idaho McNair Summer Research program.

University of Arizona

2005-2004	Served one year as the graduate student representative to the Planetary Science faculty.
2004-2002	Served two years on Organizing Committee for the Lunar and Planetary Laboratory Conference, a two day scientific conference with a budget of $6,000.00.

HONORS AND AWARDS

2002,05,06	University of Arizona graduate registration fellowship

PROFESSIONAL DEVELOPMENT

2005	Participated in JPL's TeamX Planetary Mission Planning Training.

PROFESSIONAL MEMBERSHIPS

AGU	American Geophysical Union (http://www.agu.org/)
APS	American Physical Society (http://aps.org)
DPS	Division of Planetary Science of the American Astronomical Society (http://dps.aas.org/)
GSA	Geological Society of America (http://www.geosociety.org/)

August 8, 2013