

# Lynn Marie Carter

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## Education:

- 2005 Ph.D. – Cornell University, Astronomy  
Advisor: Professor Donald B. Campbell  
Thesis: “Investigating Mantling Deposits on Venus and Regoliths on Asteroids  
Using Radar Polarimetry”
- 2002 M.S. – Cornell University, Astronomy
- 1999 B.S. – University of Illinois, Astronomy and Physics (Magna Cum Laude, with Honors)

## Research Experience:

- 2016-present *Associate Professor*  
University of Arizona, Department of Planetary Sciences
- 2010-2016 *Research Space Scientist*  
Planetary Geodynamics Lab, NASA Goddard Space Flight Center
- 2004-2010 *Postdoctoral Research Associate*  
Smithsonian Institution Center for Earth and Planetary Studies
- 1999-2004 *Graduate Research Assistant*  
Cornell University Astronomy Department
- 1998 *Research Experience for Undergraduates Summer Internship*  
National Optical Astronomy Observatory, Tucson
- 1997 *Research Experience for Undergraduates Summer Internship*  
Cornell University Astronomy Department
- 1996-1999 *Undergraduate Research Assistant*  
University of Illinois Astronomy Department

## Mission and Large Institute Involvement:

- 2017- Co-Investigator, *Shadowcam on Korea Pathfinder Lunar Orbiter*
- 2016- Deputy PI, *Mini-RF on Lunar Reconnaissance Orbiter*
- 2015- Co-Investigator, *REASON radar on the Europa flagship mission*
- 2014- Co-Investigator, *RIMFAX radar on the Mars2020 Rover*
- 2014-2018 Co-Investigator, “*Volatiles, Regolith and Thermal Investigations Consortium for Exploration and Science (VORTICES)*”, Solar System Exploration Research Virtual Institute (SSERVI) 2013, PI: Andy Rivkin (APL)
- 2014-2018 Collaborator, “*Remote In-Situ and Synchrotron Studies for Science and Exploration*”, Solar System Exploration Research Virtual Institute (SSERVI) 2013, PI: Timothy Glotch (SUNY Stony Brook)
- 2011-2015 *Mini-RF Science Team Member*, Lunar Reconnaissance Orbiter
- 2009- *SHARAD Science Team Member*, Mars Reconnaissance Orbiter

2009-2012 Co-Investigator, “*Scientific and Exploration Potential of the Lunar Poles*”, PI: D. B. J. Bussey, NASA Lunar Science Institute (NLSI)

### Funded Research Proposals:

2016-2019 **Principal Investigator**, “*Scalable Beamforming Radar Processor for High Resolution Imaging of Planetary Surfaces*”, NASA Planetary Instrument Concepts for the Advancement of Solar System Observations (PICASSO)

2016-2018 Co-Investigator, “*Constraining the Surface Properties of Mars2020 Landing Sites from Radar Data*”, JPL Competitive Request for Proposal (RFP) No. NT-2692-081715, PI: Gareth Morgan (Smithsonian)

2015-2018 **Principal Investigator**, “*Investigating the causes of radar-detected layering in ice*”, NASA Solar System Workings Program (SSW)

2014-2017 Co-Investigator, “*Characterizing Thawing Permafrost Carbon Emissions: An Integrated Pilot Study in Support of Satellite Evaluation/Design and Earth System Modeling Capabilities*”, NASA Interdisciplinary Research in Earth Science, PI: Emily Wilson (GSFC)

2014-2016 Co-Investigator, “*Earth-based Radar Studies of the Moon and Venus*”, NASA Solar System Observations (SSO), PI: Bruce Campbell (Smithsonian)

2013-2017 **Principal Investigator**, “*Remote Sensing Studies of Volcanic Deposits on Venus, Earth, and the Moon*”, NASA Planetary Geology and Geophysics Program (PG&G)

2013-2016 **Principal Investigator**, “*Investigating the Structure and Physical Properties of the Lunar Regolith using Radar and Infrared Data*”, NASA Lunar Advanced Science and Exploration Research (LASER)

2012 **Principal Investigator**, “*Application of the DBSAR Radar to Planetary Geology Studies*”, Internal Research and Development Program, NASA GSFC

2011-2012 **Principal Investigator**, “*Remote Sensing Studies of Volcanic Terrains on Venus, Earth and the Moon*”, NASA Planetary Geology and Geophysics Program (PG&G)

2009-2010 Co-Investigator, “*Volcanic Studies through EVA Simulations*”, PI: W. B. Garry (GSFC), Moon and Mars Analog Mission Activities (MMAMA)

2008-2011 **Principal Investigator**, “*Radar Polarimetric Studies of the Lunar Poles and Lunar Pyroclastic Deposits*”, NASA Lunar Reconnaissance Orbiter Participating Scientist Program (LROPS)

2007-2009 **Principal Investigator**, “*Physical Properties of Titan’s Surface from Modeling of Cassini Radar Data*”, NASA Cassini Data Analysis Program (CDAP)

2006-2009 **Principal Investigator**, “*Radar Sounding of Volcanic Terrains on Mars*”, NASA Mars Reconnaissance Orbiter Participating Scientist Program (MROPS)

2006-2008 **Principal Investigator**, “*Searching for Regolith on Asteroids Using Radar Polarimetry*”, NASA Planetary Astronomy Program (PASP)

### Fellowships and Awards:

2016 NASA Early Career Achievement Medal

2011 NASA Group Achievement Award: SHARAD Science Team

2009 NASA Group Achievement Award: SHARAD Radar Processing and Analysis team

2006 NASA Fellowship for Early Career Researchers in Planetary Science

2003 Eleanor Norton York Prize (for department service), Cornell University

1999-2003 National Science Foundation Graduate Research Fellowship

1999 Cornell University Graduate Fellowship

1998-1999 Barry M. Goldwater Excellence in Education Scholarship

### **Professional Organizations and Activities:**

2018-2019	NASA Planetary Advisory Committee
2017-2020	Venus Exploration Analysis Group (VEXAG) Steering Committee Member
2015-2016	Co-convener of AGU Fall Meeting Planetary Radar sessions
2015	Member of NEX-SAG Committee, NASA HQ advisory group for new Mars orbiter
2014	Local Organizing Committee for International Workshop on Instrumentation for Planetary Missions, Nov. 4-7, Greenbelt MD
2009-2011	Arecibo Observatory Users and Scientific Advisory Committee
2006-present	NASA Review Panel Member and External Reviewer (MDAP, PG&G, CDAP, PASP, PIDDP, NEOO, MFRP)
2007	Scientific Organizing Committee for Frontiers of Astronomy with the World's Largest Radio Telescope meeting, Washington D.C.
2001-2004	Co-Organizer, Cornell Astronomy Department Planetary Science Seminar Series
2003-present	American Geophysical Union Member
1999-present	American Astronomical Society Member
1999-present	Division for Planetary Sciences Member

### **Undergraduate Students Mentored:**

Kaitlin Kratter (astronomy, now Prof. at U. Arizona), Molly Simon (planetary science, now a grad student at U. Arizona), Julie Rose (astronomy, U. Maryland), Jack Madden (astronomy, now a grad student at Cornell University), Christine Dong (geology, Bates College), Madison Douglas (geology, MIT, awarded 2015 AGU Fall Meeting Outstanding Student Paper Award, Caltech grad student), Emileigh Shoemaker (physics, Towson U.)

### **Graduate Students Mentored:**

Indujaa Ganesh

### **Postdocs Mentored (NASA NPP program):**

David Hollibaugh-Baker, Catherine Neish (now faculty at Western University, Ontario Canada)

### **Courses Taught as Primary Instructor:**

Fall 2017	PTYS 170A1: Earth Evolution of a Habitable World
Spring 2018	PTYS 442/542: Mars

### **Outreach Activities:**

Fall 2017	College of Science "Science Café", Topic: New Views of the Moon
Fall 2017	LPL Evening Lecture Series, Topic: Seeing Underground on Mars
2010-2017	Outreach activities at Goddard including: Observe the Moon night, lunar eclipse "live shots" TV interviews, Museum Alliance and other online presentations, CRESST intern seminar, SISTERS program for middle school girls.
2005-2010	Activity leader for occasional National Air and Space Museum public programs (Space Day, Mars Day, Moon Day)
2005-2010	Presenter of public "Curator's Choice" museum talks about research and artifacts
1999-2004	Designer and participant for the Cornell University Ask an Astronomer website ( <a href="http://curious.astro.cornell.edu/">http://curious.astro.cornell.edu/</a> )
2002-2004	Workshop Leader for Expanding Your Horizons program for middle school girls
2001-2004	Workshop Leader for Focus for Teens 4H career camp for high school students

## Recent Invited Talks:

- July 15, 2017 Cornell's Legacy of Arecibo Discoveries, Cornell University
- Apr. 28, 2016 Geology Department Colloquium, Penn State University
- Feb. 26, 2016 Department Colloquium, University of Arizona Lunar and Planetary Laboratory
- Aug. 12, 2015 Observatory Seminar, Arecibo Observatory, Arecibo, PR
- Oct. 31, 2014 Geology Department Seminar, University of Maryland, University Park, MD
- Oct. 28, 2013 50 years of Scientific Achievement and Future Directions at Arecibo Symposium, Arecibo Observatory, Puerto Rico

## Publications

### Book Chapters:

- Karunatillake, S., **L. M. Carter**, H. B. Franz, L. Hallis and J. Hurowitz, Geochemical Interpretations Using Multiple Remote Datasets, in *Remote Compositional Analysis: Techniques for Understanding Spectroscopy, Mineralogy and Geochemistry of Planetary Surfaces*, Cambridge University Press, in review, 2017.
- Neish, C. D. and **L. M. Carter**, Planetary Radar, in *Encyclopedia of the Solar System*, Elsevier, 2014.

### Non-refereed/Commentary:

- **Carter, L. M.**, Hot Spots on an Ice World, *Nature Astronomy*, 1, 0084, doi:10.1038/s41550-017-0084, 2017.

### Refereed Papers:

- Baker, D. M. H. and L. M. Carter, Probing supraglacial debris on Mars 2: Crater morphology, submitted to *Icarus*, 2018.
- Baker, D. M. H. and L. M. Carter, Probing supraglacial debris on Mars 1: Constraints on the accessibility of global ice, submitted to *Icarus*, 2018.
- Shoemaker, E. S., D. M. H. Baker and L. M. Carter, Radar sounding of open basin lakes on Mars, submitted to *J. Geophys. Res.* 2018.
- Campbell, B. A., J. L. Whitten, G. A. Morgan, **L. M. Carter**, L. S. Glaze and D. B. Campbell, Pyroclastic Flow Deposits on Venus as Indicators of Renewed Mantle Plume Activity, *Icarus*, in press, 2017.
- Orosei, R., A. P. Rossi, F. Cantini, C. Caprarelli, **L. M. Carter**, I. Papiano, M. Cartacci, A. Cicchetti, R. Noschese, Radar Sounding of Lucus Plauum, Mars, by MARSIS, *J. Geophys. Res.*, in press, 2017.
- Ghail, R. C., D. Hall, P. J. Mason, R. R. Herrick, **L. M. Carter**, E. Williams, VenSAR on EnVision: taking earth observation radar to Venus, *Int. J. Appl. Earth Observ. Geoinf.*, in press, doi: 10.1016/j.jag.2017.02.008, 2017.
- Martin-Wells, K., D. B. Campbell, B. A. Campbell, and **L. M. Carter**, "Secondary Crater Initiated Debris Flow on the Moon", *Icarus*, 291,176-191, 2017.
- Bandfield, J. L., J. T. S. Cahill, **L. M. Carter**, C. D. Neish, G. W. Patterson, J.-P. Williams, D. A. Paige, Distal Ejecta from Lunar impacts: Extensive regions of rocky deposits, *Icarus*, 283, 282, doi:10.1016/j.icarus.2016.05.013, 2017.
- **Carter, L. M.**, B. A. Campbell, C. D. Neish, M. C. Nolan, G. W. Patterson, J. R. Jensen and D. B. J. Bussey, A comparison of radar polarimetry data of the Moon from the Lunar Reconnaissance Orbiter Mini-RF instrument and Earth-based systems, *IEEE Trans. Geosci. Rem. Sens.*, 55, 1915-1927, doi:10.1109/TGRS.2016.2631144, 2017.

- Neish, C. D., C. W. Hamilton, S. S. Hughes, S. Kobs Nawotniak, W. B. Garry, J. R. Skok, R. C. Elphic, E. Schaefer, **L. M. Carter**, J. L. Bandfield, G. R. Osinski, D. Lim, J. L. Heldmann, Terrestrial analogues for lunar impact melt flow, *Icarus*, 281, 73, doi:10.1016/j.icarus/2016.08.008, 2017.
- Patterson, G. W., A.M. Stickle, F.S. Turner, J.R. Jensen, D.B.J. Bussey, P. Spudis, R.C. Espiritu, R.C. Schulze, D.A. Yocky, D.E. Wahl, M. Zimmerman, J.T.S. Cahill, M. Noland, **L. Carter**, C.D. Neish, R.K. Raney, B.J. Thomson, R. Kirk, T.W. Thompson, B.L. Tise, I.A. Erteza, C.V. Jakowatz, Bistatic radar observations of the Moon using Mini-RF on LRO and the Arecibo Observatory, *Icarus*, 283, 2, doi: j.icarus.2016.05.017, 2016.
- Ghent, R. R., **L. M. Carter**, J. L. Bandfield, C. J. Tai Udovicic, B. A. Campbell, Lunar crater ejecta: Physical properties revealed by radar and thermal infrared observations, *Icarus*, 273, 182, doi:10.1016/j.icarus.2015.12.014, 2015.
- Morgan, G. A., B. A. Campbell, **L. M. Carter**, and J. J. Plaut, Evidence for the episodic erosion of the Medusae Fossae Formation preserved within the youngest volcanic province on Mars, *Geophys. Res. Lett.*, 42, 7336, doi:10.1002/2015GL065017, 2015.
- Campbell, B. A., D. B. Campbell, G. A. Morgan, **L. M. Carter**, M. C. Nolan and J. F. Chandler, Evidence for Crater Ejecta on Venus Tessera Terrain from Earth-based radar images, *Icarus*, 250, 123, doi:10.1016/j.icarus.2014.11.025, 2015.
- Simon, M. S., **L. M. Carter**, B. A. Campbell, R. J. Phillips, and S. Mattei, Studies Of Lava Flows in the Tharsis Region of Mars Using Shallow Radar (SHARAD), *J. Geophys. Res.*, doi:10.1002/2014JE004666, 119, 2291-2299, 2014.
- Ghent, R. R., P. O. Hayne, J. L. Bandfield, B. A. Campbell, C. C. Allen, **L. M. Carter**, and D. A. Paige, Constraints on the recent rate of lunar ejecta breakdown and implications for crater ages, *Geology*, doi:10.1130/G35926.1, 2014.
- Neish, C. D., J. Madden, **L. M. Carter**, B. R. Hawke, T. Giguere, V. J. Bray, G. R. Osinski and J. T. S. Cahill, Global Distribution of lunar impact melt flows, *Icarus*, 239, 105-117, doi:j.icarus.2014.05.049, 2014.
- Campbell, B. A., B. R. Hawke, G. A. Morgan, **L. M. Carter**, D. B. Campbell and M. C. Nolan, Improved discrimination of volcanic complexes, tectonic features, and regolith properties in Mare Serenitatis from Earth-based radar mapping, *J. Geophys. Res.*, 119, 313-330, doi:10.1002/2013JE004486, 2014.
- Cahill, J. T. S., B. J. Thomson, G. W. Patterson, D. B. J. Bussey, C. D. Neish, N R. Lopez, F. S. Turner, T. Aldridge, M. McAdam, H. M. Meyer, R. K. Raney, **L. M. Carter**, P. D. Spudis, H. Hiesinger, and J. H. Pasckert, The Miniature Radio Frequency Instrument's (Mini-RF) global observations of Earth's Moon, *Icarus*, 243, 173-190, doi:10.1016/j.icarus.2014.07.018, 2014.
- Russell, P. S., J. A. Grant, K. K. Williams, **L. M. Carter**, W. B. Garry and I. J. Dauber, Ground penetrating radar geologic field studies of the ejecta of Barringer Meteorite Crater, Arizona, as a planetary analog, *J. Geophys. Res.*, 118, 1915-1933, doi: 10.1002/jgre.20145, 2013.
- Morgan, G. A., B. A. Campbell, **L. M. Carter**, J. J. Plaut and R. J. Phillips, 3D Reconstruction of the Source and Scale of Buried Young Flood Channels on Mars, *Science*, 340, 607, doi:10.1126/science.1234787, 2013.
- Campbell, B. A., N. E. Putzig, **L. M. Carter**, G. A. Morgan, R. J. Phillips, and J. J. Plaut, Roughness and Near-Surface Density of Mars from SHARAD Radar Echoes, *J. Geophys. Res.*, 118, 1-15, doi:10.1002/jgre.20050, 2013.
- **Carter, L. M.**, C. D. Neish, D. B. J. Bussey, P. D. Spudis, G. W. Patterson, J. T. Cahill, and R. K. Raney, Initial observations of lunar impact melts and ejecta flows with the Mini-RF radar, *J. Geophys. Res.*, 117, E00H09, doi:10.1029/2011JE003911, 2012.
- Phillips, R. J., B. J. Davis, K. L. Tanaka, S. Byrne, M. T. Mellon, N. E. Putzig, M. A. Kahre, B. A. Campbell, **L. M. Carter**, I. B. Smith, J. W. Holt, S. E. Smrekar, D. C. Nunes, J. J. Plaut, A. F. Egan, T. N Titus, and R. Seu, Massive CO<sub>2</sub> Ice Deposits Sequestered in the South Polar Layered Deposits of Mars, *Science*, 332, doi: 10.1126/science.1203091, 2011.

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- **Carter, L. M.**, D. B. Campbell and B. A. Campbell, Geologic studies of planetary surfaces using radar polarimetric imaging, *Proc. IEEE*, 99, doi:10.1109/JPROC.2010.2099090, 2011.
- Black, G. J., D. B. Campbell and **L. M. Carter**, Ground-Based Radar Observations of Titan: 2000-2008, *Icarus*, doi:10.1016/j.icarus.2010.10.025, 2011.
- Neish, C. D., D. B. J. Bussey, P. Spudis, W. Marshall, B. J. Thomson, G. W. Patterson, and **L. M. Carter**, The nature of lunar volatiles as revealed by Mini-RF observations of the LCROSS impact site, *J. Geophys. Res.*, 116, E01005, doi:10.1029/2010JE003647, 2011.
- Ghent, R. R., V. Gupta, B.A. Campbell, S. A. Ferguson, J. Brown, R. Ferguson and **L. M. Carter**, Generation and atmospheric entrainment of fine-grained ejecta in planetary impacts, *Icarus*, 209, doi:10.1016/j.icarus.2010.05.005, 2010.
- Campbell, B. A., **L. M. Carter**, D. B. Campbell, M. C. Nolan, J. F. Chandler, R. R. Ghent, B. R. Hawke, R. F. Anderson and K. S. Wells, Earth-Based S-band Radar Mapping of the Moon: New Views of Impact Melt Distribution and Mare Physical Properties, *Icarus*, 208, doi:10.1016/j.icarus.2010.03.011, 2010.
- Spudis, P. D. and 29 coauthors, Initial results for the north pole of the Moon from Mini-SAR, Chandrayaan-1 mission, *Geophys. Res. Lett.*, 37, L06204, doi:10.1029/2009GL042259, 2010.
- Wells, K. S., D. B. Campbell, B. A. Campbell, and **L. M. Carter**, Detection of Small Lunar Secondary Craters in Circular Polarization Ratio Radar Images, *J. Geophys. Res.*, 115, E06008, doi:10.1029/2009JE003491, 2010.
- **Carter, L. M.**, B. A. Campbell, J. W. Holt, R. J. Phillips, N. E. Putzig, S. Mattei, R. Seu, and C. H. Okubo, Dielectric Properties of Lava Flows West of Ascraeus Mons, Mars, *Geophys. Res. Lett.*, 36, L23204, doi:10.1029/2009GL041234, 2009.
- Campbell, B. A., B. R. Hawke, **L. M. Carter**, R. R. Ghent and D. B. Campbell, Rugged Lava Flows in the Lunar Maria Revealed by Earth-based Radar, *Geophys. Res. Lett.*, 36, L22201, doi:10.1029/2009GL041087, 2009.
- Putzig, N. E., R. J. Phillips, B. A. Campbell, J. W. Holt, J. J. Plaut, **L. M. Carter**, A. Egan, F. Bernardini, A. Safaeinili, and R. Seu, Subsurface Structure of Planum Boreum from Mars Reconnaissance Orbiter Shallow Radar soundings, *Icarus*, 204, doi:10.1016/j.icarus.2009.07.034, 2009.
- **Carter, L. M.**, B. A. Campbell, B. R. Hawke, D. B. Campbell and M. C. Nolan, Radar Remote Sensing of Pyroclastic Deposits in the Mare Serenitatis and Mare Vaporum Regions of the Moon, *J. Geophys. Res.*, 114, E11004, doi:10.1029/2009JE003406, 2009.
- **Carter, L. M.**, B. A. Campbell, T. R. Watters, R. J. Phillips, N. E. Putzig, A. Safaeinili, J. J. Plaut, C. H. Okubo, A. F. Egan, R. Seu, D. Biccari, and R. Orosei, Shallow Radar (SHARAD) Sounding Observations of the Medusae Fossae Formation, Mars, *Icarus*, 199, doi:10.1016/j.icarus.2008.10.007, 2009.
- Campbell, B. A., **L. M. Carter**, R. J. Phillips, N. E. Putzig, J. J. Plaut, A. Safaeinili, R. Seu, D. Biccari and R. Orosei, A. Egan, SHARAD Radar Sounding of Amazonis Planitia, *J. Geophys. Res.*, 113, E12010, doi:10.1029/2008JE003177, 2008.
- Phillips, R. J., M. T. Zuber, S. E. Smrekar, M. T. Mellon, J. W. Head, K. L. Tanaka, N. E. Putzig, S. M. Milkovich, B. A. Campbell, J. J. Plaut, A. Safaeinili, R. Seu, D. Biccari, **L. M. Carter**, G. Picardi, R. Orosei, P. S. Mohit, E. Heggy, R. W. Zurek, A. F. Egan, E. Giacomoni, F. Russo, M. Cutigni, E. Pettinelli, J. W. Holt, C. J. Leuschen, and L. Marinangeli, Mars North Polar Deposits: Stratigraphy, Age, and Geodynamical Response, *Science*, 320, doi:10.1126/science.1157546, 2008.
- Campbell, B. A., **L. M. Carter**, B. R. Hawke, D. B. Campbell and R. R. Ghent, Volcanic and Impact Deposits of the Moon's Aristarchus Plateau: A New View from Earth-Based Radar Images, *Geology*, 36, 135, 2008.
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- of the Medusae Fossae Formation Mars: Equatorial Ice or Dry, Low-Density Deposits?, *Science*, 318, 1125, 2007.
- Campbell, B. A., D. B. Campbell, J. L. Margot, R. R. Ghent, M. Nolan, J. Chandler, **L. M. Carter** and N. J. S. Stacy, Focused 70-cm Wavelength Radar Mapping of the Moon, *IEEE Trans. Geosci. Rem. Sens.*, 45, 4032, 2007.
  - Black, G. J., D. B. Campbell and **L. M. Carter**, Arecibo radar observations of Rhea, Dione, Tethys, and Enceladus, *Icarus*, 191, 702, 2007.
  - Seu, R. and the SHARAD Team, Accumulation and erosion of Mars south polar deposits from subsurface radar sounding, *Science*, 317, 1715, 2007.
  - Campbell, B. A., D. B. Campbell, J. L. Margot, R. R. Ghent, M. Nolan, J. Chandler, **L. M. Carter** and N. J. S. Stacy, Looking Below the Moon's Surface with radar, *EOS Trans. AGU*, 88, 13, 2007.
  - Kratter, K. M., **L. M. Carter** and D. B. Campbell. An Expanded View of Lada Terra: New Arecibo Radar Observations of Quetzalpetlatl and Surrounding Flows. *J. Geophys. Res.*, 112, E04008, doi:10.1029/2006JE002722, 2007.
  - Campbell, D. B., B. A. Campbell, **L. M. Carter**, J. L. Margot and N. J. S. Stacy. No evidence for thick deposits of ice at the lunar poles, *Nature*, 443, 835, 2006.
  - **Carter, L. M.**, D. B. Campbell and B. A. Campbell. Volcanic Deposits in Shield Fields and Highland Regions on Venus: Surface Properties from Radar Polarimetry. *J. Geophys. Res.*, 111, E06005, doi:10.1029/2005JE002519, 2006.
  - **Carter, L. M.**, D. B. Campbell and B. A. Campbell. Impact Crater Related Surficial Deposits on Venus: Multi-Polarization Radar Observations with Arecibo. *J. Geophys. Res.*, 109, E06009, doi:10.1029/2003JE002227, 2004.
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  - Campbell, D. B., G. J. Black, **L. M. Carter** and S. J. Ostro. Radar Evidence for Liquid Surfaces on Titan. *Science*, 302, 431, 2003.
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  - **Carter, L. M.**, J. R. Dickel and D. J. Bowmans. Expansion of the Supernova Remnant RCW 103. *Pub. Astron. Soc. Pacific*, 109, 990, 1997.