

SHANNON MACKENZIE

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EDUCATION

University of Idaho

Expected: December 2017

PhD. in Physics

University of Idaho

August 2015

M.Sc. in Physics

University of Louisville, Kentucky

May 2012

B.S. in Physics

PUBLICATIONS

J.W. Barnes, **S. M. MacKenzie**, E. F. Young, L. E. Trouille, S. Rodriguez, T. Cornet, B. K. Jackson, M. Ádámkóvics, C. Sotin, J. M. Soderblom, ‘*Spherical Radiative Transfer in C++ (SRTC++)*: A Parallel Monte-Carlo Radiative Transfer Model for Titan’, submitted to The Astrophysical Journal

S.P.D. Birch, A.G. Hayes, P. Corlies, E.R. Stofan, J.D. Hofgartner, R.M.C. Lopes, R.D. Lorenz, J.I. Lunine, **S.M. MacKenzie**, M.J. Malaska, C.A. Wood, and the Cassini RADAR Team ‘*Morphological Evidence that Titan’s Southern Hemisphere Basins are Paleoseas*’, in revision, Icarus

S.M. MacKenzie and nineteen coauthors, ‘*THEO Concept Mission: Testing the Habitability of Enceladus’s Ocean*’, 2016, Advances in Space Research, doi:10.1016/j.asr.2016.05.037

S.M. MacKenzie, J.W. Barnes, ‘*Compositional similarities and distinctions between Titan’s Evaporitic Terrains*’, 2016, The Astrophysical Journal, 821, 17

D. Cordier, T. Cornet, J. W. Barnes, **S.M. MacKenzie**, T. Le Bahers, D. Nna-Mvondo, P. Rannou, A. G. Ferreira, ‘*Structure of Titan’s evaporites*’, 2016, Icarus 270, 41-56
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C.D. Neish, J.W. Barnes, C. Sotin, **S.M. MacKenzie**, J.M. Soderblom, S. Le Moulic, R.L. Kirk, B.W. Stiles, M.J. Malaska, A. Le Gall, R. H. Brown, K. H. Baines, B. J. Buratti, R. N. Clark, P. D. Nicholson, ‘*Spectral properties of Titan’s impact craters imply chemical weathering of its surface*’, 2015, Icarus, 42, 3746-3754

G. Vixie, J. W. Barnes, B. Jackson, S. Rodriguez, S. Le Moulic, C. Sotin, **S.M. MacKenzie**, P. Wilson, ‘*Possible temperate lakes on Titan*’, 2015, Icarus, 257, 313-323

S.M. MacKenzie, J.W. Barnes, R.H. Brown, C. Sotin, S. Le Moulic, S. Rodriguez, B. Buratti, R. Clark, K. H. Baines, P.D. Nicholson, ‘*Evidence of Titan’s Climate History from Evaporite Distribution*’, 2014, Icarus 243, 191-207

A. Pipino, T.Szabo, E. Pierpaoli, **S.M. MacKenzie**, F.Dong, ‘*The Properties of Brightest Cluster Galaxies in the SDSS DR6 Adaptive Matched Filter Cluster Catalogue*’, 2011, Monthly Notices of the Royal Astronomical Society, 417, 2817-2830

FELLOWSHIPS AND GRANTS

NASA Earth and Space Science Fellowship 2014-2017	\$90,000
Leonard Halland Centennial Scholarship	\$2,056
Glen E. and Jean K. Nielsen Science Scholarship 2014-2015	\$1,500
Idaho Space Grant Consortium 2013 Research Fellowship	\$16,000
Barry M. Goldwater Scholarship 2011	\$5,500

HONORS AND AWARDS

Dean's Graduate (May 2017)
Division for Planetary Sciences Hartmann Student Travel Award (October 2017)
University of Idaho 3 Minute Thesis Competition 1st Place (April 2016)
University of Idaho College of Science Innovation Showcase 3rd Place Disciplinary Science (April 2016)
University of Idaho College of Science Video Competition 1st Place (April 2016)
NSF Graduate Research Fellowship Program 2012 Honorable Mention
University of Louisville College of Arts and Sciences Woodcock Medalist 2012
University of Louisville Honors Scholar Suma Cum Laude 2012
University of Louisville Department of Physics and Astronomy Graduating Senior 2012
William Marshal Bullitt Award in Astronomy 2012

SELECT PRESENTATIONS

<i>49th Meeting of the Division of Planetary Sciences</i>	October 16-20 2017
"A bright intra-dune feature on Titan and its implications for sand formation and transport" (poster)	
<i>Titan Surface Working Group</i>	October 2-4 2017
"Phantom Lakes at the North Pole" (talk)	
<i>VIMS Team Meeting</i>	September 15-16 2017
"Characteristics of the Bright Fensal Feature" (talk)	
<i>5th International Planetary Dunes Workshop</i>	May 16-19 2017
"A new candidate sand source in Titan's equatorial region?" (talk)	
<i>Titan Surface Working Group</i>	November 2-4 2016
"Spherical Radiative Transfer in C++" (talk)	
<i>48th Meeting of the Division of Planetary Sciences</i>	October 16-21 2016
"Compositional mapping of Titan's North Pole with VIMS" (talk)	
<i>Outer Planets Assessment Group Meeting</i>	August 9-12 2016
"Titan's North Pole: Defining the Spectral Units" (poster)	
<i>International Association of Sedimentology</i>	May 23-25 2016
"Exploring Titan's Dynamic Surface with Evaporites" (talk)	
<i>Cassini VIMS Team Meeting</i>	May 9-11 2016
"North Polar Mapping with VIMS" (talk)	
<i>Outer Planets Assessment Group Meeting</i>	February 1-2 2016
"THEO Concept Mission: Testing the Habitability of Enceladus's Ocean" (poster)	
<i>47th Meeting for the Division for Planetary Science</i>	November 8-13 2015
"THEO Concept Mission: Testing the Habitability of Enceladus's Ocean" (poster)	
<i>4th International Planetary Dunes Workshop</i>	May 19-22 2015
"The Lake-Dune Connection: Investigating Titan's Sand Sources" (talk)	
<i>46th Meeting for the Division for Planetary Science</i>	November 9-14 2014
"Characteristics of the 5- μ m-bright spectral unit from spectral analysis of Tui Regio" (poster)	
<i>Cassini Titan Surface Meeting</i>	October 6-8 2014
"Is all 5- μ m-bright material the same?" (talk)	
<i>Titan Through Time</i>	April 8-10 2014
"Spectral Characteristics of Titan's 5- μ m-bright Material" (poster)	

<i>45th Meeting for the Division for Planetary Science</i>	October 6-11 2013
“Evidence of Titan’s Climate History from Evaporite Distribution” (talk)	
<i>Cassini Titan Surface Meeting</i>	August 19-20 2013
“Evidence of Titan’s Climate History from Evaporite Distribution” (talk)	

RELEVANT EXPERIENCE

<i>Dragonfly New Frontiers Proposal</i>	March 2016 - April 2016
<u>Co-Investigator</u> : co-wrote the science section of the proposal, created maps for landing site selection, geology science team lead	

<i>Oceanus New Frontiers Proposal</i>	May 2016 - April 2016
<u>Student collaborator</u> : assisted in the design and writing of evaporite investigation, science section of the proposal, and STM development	

<i>Field Work: Veevers Crater, Western Australia</i>	July 8-14 2016
Assisted in OSL and photographic data collection	

<i>Biosignatures of Extant Life on Ocean Worlds Workshop</i>	September 2016
Contributed to discussions and development of recommended strategy	

<i>NASA Mission Instrument Selection Panel</i>	February 2015
<u>Executive Secretary</u> responsible for recording and summarizing panel findings	

<i>Roadmap to Ocean Worlds Committee</i>	February 2016 - present
Contributed to summary document, participated in Titan documentation and discussion	

<i>University of Idaho Department of Physics</i>	August 2015 - December 2015
<u>Graduate Teaching Assistant</u> : Redesigned introductory astronomy lab, co-authored new curriculum, and obtained new equipment	

<i>Jet Propulsion Laboratory Planetary Science Summer School</i>	May- August 2015
<u>Principal Investigator</u> led the design, planning, and execution of a mock mission; presented poster at several conferences; wrote manuscript	

<i>Titan Surface Working Group Meeting</i>	September 10-12 2015
Wrote local field trip guide and assisted in meeting planning and execution	

<i>Field Work: United Arab Emirates</i>	April 20-27 2015
Assisted in OSL, GPR, and photographic data collection	

<i>University of Idaho Department of Physics</i>	August 2012 - present
<u>Graduate Research Assistant</u> : Developing spherical, 3D radiative transfer model in C++; analyzing and mapping multispectral data from the Cassini spacecraft; writing and presenting findings to journals and conferences	