

# JASON DANIEL HOFGARTNER – CURRICULUM VITAE

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## EDUCATION

- Ph.D. 2016  
Cornell University, Astronomy  
Thesis Title: Dynamic Phenomena in the Lakes and Seas of Titan  
Thesis Advisor: Jonathan I. Lunine  
Thesis Co-Advisor: Alexander G. Hayes  
Minor in Earth and Atmospheric Sciences
- M. S. 2014  
Cornell University, Astronomy
- B. S. 2011  
University of Waterloo, Physics, Honours, Co-operative Program  
Astrophysics Specialization, French Language I Certificate

## ACADEMIC AWARDS AND FELLOWSHIPS

- NASA Group Achievement Award, New Horizons Team 2017
- NASA Postdoctoral Program Fellow, Jet Propulsion Laboratory 2016 - 2017
- Cranson and Edna B. Shelley Graduate Research Award, Cornell University 2015
- American Geophysical Union Outstanding Student Paper Award 2014
- Natural Sciences and Engineering Research Council of Canada  
Post Graduate Scholarship Doctoral 2012 - 2015  
Post Graduate Scholarship Master's 2011 - 2012
- Ontario Graduate Scholarship (declined in favor of Cornell University) 2011
- University of Waterloo  
Helen Sawyer Hogg Scholarship in Astronomy 2011  
Ian R. Dagg Memorial Scholarship 2010  
President's Research Award 2010  
Mike Lazaridis Scholarship in Theoretical Physics 2010  
J. W. Leech Physics Book Prize 2009  
C. C. Lim Physics Book Prize 2008  
President's International Experience Award 2007  
Don E. Brodie Scholarship in Science 2007  
President's Scholarship of Distinction 2006

## PLANETARY SCIENCE MISSION EXPERIENCE

- New Horizons Mission 2016 - present

Geology and Geophysics Investigation  
Contribute to data analysis

Cassini Solstice Mission

Cassini Radar Science Team  
Associate Team Member 2015 - present  
Contribute to data analysis and observation planning 2013 - present  
Presented at Project Science Group Meeting, Plenary Session 2013

Oceanus Proposal (NASA New Frontiers 4 Proposal to Titan) 2016 - present

Leading development of science traceability matrix remote sensing investigations  
Leading writing of scientific rationale and requirements for one investigation  
Contribute to conops design

Planetary Science Summer School, Jet Propulsion Laboratory 2015

**PROFESSIONAL EMPLOYMENT EXPERIENCE**

NASA Postdoctoral Program Fellow Jan. 2016 – present

Jet Propulsion Laboratory, Pasadena, California, U. S. A.  
Searching for temporal changes on Pluto and Charon  
Photometry of Pluto and Charon

Mike Lazaridis Physics Research Assistant May – Aug. 2010

Perimeter Institute, Waterloo, Ontario, Canada  
Studied and examined Standard and Inflationary Cosmology  
Calculated the probability of slow-roll inflation using different measures  
Report: Probability of Slow-roll Inflation from the Canonical Measure

Physics Research Assistant Sep. – Dec. 2009

SNOLAB, Sudbury, Ontario, Canada  
Operated DEAP-1 detector, responsible for detector calibration and data acquisition  
Analyzed DEAP-1 data set and quantified Pulse-shape Discrimination  
Report: Evaluation of Pulse-shape Discrimination with the DEAP-1 Dark Matter Detector at SNOLAB

Geophysical Data Processor Sep. 2008 – Apr. 2009

Sander Geophysics, Ottawa, Ontario, Canada and United Arab Emirates (field site)  
Processed geophysical data sets, including aeromagnetic, position and terrain data  
Prepared geophysical survey plans, including drape surfaces  
Operated geophysical equipment and responsible for data quality control  
Assisted with field logistics and crew management  
Report: Analyzing Repeatability in Airborne Magnetic Geophysics using Accidental Re-flight Data  
Report: Determining the Most Accurate Method to Differentially Locate Reference Stations

Junior Project Officer Jan. – Apr. 2008

Health Canada, Ottawa, Ontario, Canada  
Updated and maintained Canadian Pesticide Risk Indicator  
Performed Principal Components Analysis on Canadian Pesticide Risk Indicator

### ACADEMIC TEACHING EXPERIENCE

Cornell University, Astronomy

Guest Lecturer (9 times)	Fall 2012 – Fall 2015
Lead Teaching Assistant, Our Solar System - Astronomy 1102/1104	Spring 2013
Teaching Assistant, The Nature of the Universe - Astronomy 1101/1103	Fall 2012

### PEER-REVIEWED PUBLICATIONS

14. S. Stern, J. Kammer, E. Barth, K. Singer, T. Lauer, **J. D. Hofgartner**, H. Weaver, K. Ennico, C. B. Olkin, L. Young, Evidence for Possible Clouds in Pluto's Present Day Atmosphere, *The Astronomical Journal*, *in press*
13. C. Grima, M. Mastrogiuseppe, A. G. Hayes, S. D. Wall, R. D. Lorenz, **J. D. Hofgartner**, B. Stiles, C. Elachi, The Cassini Radar Team, Surface Roughness of Titan's Hydrocarbon Seas, *Earth and Planetary Science Letters*, *in press*
12. M. J. Malaska, R. Hodyss, J. I. Lunine, A. G. Hayes, **J. D. Hofgartner**, G. Hollyday, R. D. Lorenz, Laboratory measurements of nitrogen dissolution in Titan lake fluids, *Icarus*, *in press*
11. B. J. Buratti, **J. D. Hofgartner**, M. D. Hicks, H. A. Weaver, S. A. Stern, T. Momary, J. A. Mosher, R. A. Beyer, A. J. Verbiscer, A. M. Zangari, L. A. Young, C. M. Lisse, K. Singer, A. Cheng, W. Grundy, K. Ennico, C. B. Olkin, Global Albedos of Pluto and Charon from LORRI *New Horizons* Observations, *Icarus*, **287**, 207-217, 2017
10. P.-A. Amaudruz, M. Batygov, B. Beltran, J. Bonatt, K. Boudjemline, M.G. Boulay, B. Broerman, J.F. Bueno, A. Butcher, B. Cai, T. Caldwell, M. Chen, R. Chouinard, B.T. Cleveland, D. Cranshaw, K. Dering, F. Duncan, N. Fatemighomi, R. Ford, R. Gagnon, P. Giampa, F. Giuliani, M. Gold, V.V. Golovko, P. Gorel, E. Grace, K. Graham, D.R. Grant, R. Hakobyan, A.L. Hallin, M. Hamstra, P. Harvey, C. Hearn, **J. Hofgartner**, C.J. Jillings, M. Kuźniak, I. Lawson, F. La Zia, O. Li, J.J. Lidgard, P. Liimatainen, W.H. Lippincott, R. Mathew, A.B. McDonald, T. McElroy, K. McFarlane, D.N. McKinsey, R. Mehdiyev, J. Monroe, A. Muir, C. Nantais, K. Nicolics, J. Nikkel, A.J. Noble, E. O'Dwyer, K. Olsen, C. Ouellet, P. Pasuthip, S.J.M. Peeters, T. Pollmann, W. Rau, F. Retière, M. Ronquest, N. Seeburn, P. Skensved, B. Smith, T. Sonley, J. Tang, E. Vázquez-Jáuregui, L. Veloce, J. Walding, M. Ward, Measurement of the scintillation time spectra and pulse-shape discrimination of low-energy beta and nuclear recoils in liquid argon with DEAP-1, *Astroparticle Physics*, **85**, 1-23, 2016
9. S.P.D. Birch, A.G. Hayes, W. Dietrich, A.D. Howard, C. Bristow, M.J. Malaska, J. Moore, M. Mastrogiuseppe, **J.D. Hofgartner**, D.A. Williams, O. White, J. Soderblom, J.W. Barnes, E. Turtle, J.I. Lunine, C. Wood, C. Neish, R. Kirk, E. Stofan, R. Lorenz, R.M.C. Lopes, Geomorphologic mapping of Titan's polar terrains: Constraining Surface Processes and Landscape Evolution, *Icarus*, **282**, 214-236, 2017

8. V. Poggiali, M. Mastrogiuseppe, A. G. Hayes, R. Seu, S. P. D. Birch, R. Lorenz, C. Grima, **J. D. Hofgartner**, Liquid-filled Canyons on Titan, *Geophysical Research Letters*, **43**, 7887-7894, 2016
7. S.M. MacKenzie, T.E. Caswell, C.M. Phillips-Lander, E.N. Stravros, **J.D. Hofgartner**, V.Z. Sun, K.E. Powell, C.J. Steuer, J.G. O'Rourke, J.K. Dhaliwal, C.W.S. Leung, E.M. Petro, J.J. Wynne, S. Phan, M. Crismani, A. Krishnamurthy, K.K. John, K. DeBruin, C.J. Budney, K.L. Mitchell, THEO Concept Mission: Testing the Habitability of Enceladus's Ocean, *Advances in Space Science Research*, **58**, 1117-1137, 2016
6. M. Mastrogiuseppe, A. Hayes, V. Poggiali, R. Seu, J. Lunine, **J. D. Hofgartner**, Radar Sounding Using Cassini Altimeter: Waveform Modeling and Monte Carlo approach for Data Inversion of Observations of Titan Liquid Bodies, *Institute of Electrical and Electronics Engineers Transactions on Geoscience and Remote Sensing*, **54**, 5646-5656, 2016
5. **J. D. Hofgartner**, A. G. Hayes, J. I. Lunine, H. Zebker, R. D. Lorenz, M. J. Malaska, M. Mastrogiuseppe, C. Notarnicola, J. M. Soderblom, Titan's Magic Islands: Transient Features in a Hydrocarbon Sea, *Icarus*, **271**, 338-349, 2016
4. O. Mousis, J. I. Lunine, A. G. Hayes, **J. D. Hofgartner**, The fate of ethane in Titan's hydrocarbon lakes and seas, *Icarus*, **270**, 37-40, 2016
3. M. Akashi-Ronquest, P.-A. Amaudruz, M. Batygov, B. Beltran, M. Bodmer, M.G. Boulay, B. Broerman, B. Buck, A. Butcher, B. Cai, T. Caldwell, M. Chen, Y. Chen, B. Cleveland, K. Coakley, K. Dering, F.A. Duncan, J.A. Formaggio, R. Gagnon, D. Gastler, F. Giuliani, M. Gold, V.V. Golovko, P. Gorel, K. Graham, E. Grace, N. Guerrero, V. Guisepepe, A.L. Hallin, P. Harvey, C. Hearn, R. Henning, A. Hime, **J. Hofgartner**, S. Jaditz, C.J. Jillings, C. Kachulis, E. Kearns, J. Kelsey, J.R. Klein, M. Kuzniak, A. LaTorre, I. Lawson, O. Li, J.J. Lidgard, P. Liimatainen, S. Linden, K. McFarlane, D.N. McKinsey, S. MacMullin, A. Mastbaum, R. Mathew, A.B. McDonald, D.-M. Mei, J. Monroe, A. Muir, C. Nantais, K. Nicolics, J.A. Nikkel, T. Noble, E. O'Dwyer, K. Olsen, G.D. Orebi Gann, C. Ouellet, K. Palladino, P. Pasuthip, G. Perumpilly, T. Pollmann, P. Rau, F. Retiere, K. Rielage, R. Schnee, S. Seibert, P. Skensved, T. Sonley, E. Vazquez-Jauregui, L. Veloce, J. Walding, B. Wang, J. Wang, M. Ward, C. Zhang, Improving photoelectron counting and particle identification in scintillation detectors with Bayesian techniques, *Astroparticle Physics*, **65**, 40-54, 2015
2. **J. D. Hofgartner**, A. G. Hayes, J. I. Lunine, H. Zebker, B. W. Stiles, C. Sotin, J. W. Barnes, E. P. Turtle, K. H. Baines, R. H. Brown, B. J. Buratti, R. N. Clark, P. Encrenaz, R. D. Kirk, A. Le Gall, R. M. Lopes, R. D. Lorenz, M. J. Malaska, K. L. Mitchell, P. D. Nicholson, P. Paillou, J. Radebaugh, S. D. Wall, C. Wood, The discovery of transient features in a Titan sea, *Nature Geoscience*, **7**, 493-496, 2014
1. **J. D. Hofgartner**, J. I. Lunine, Does ice float in Titan's lakes and seas? *Icarus*, **223**, 628-631, 2013

#### SUBMITTED PUBLICATIONS

**J. D. Hofgartner**, B. J. Buratti, S. L. Devins, R. A. Beyer, P. Schenk, S. A. Stern, H. A. Weaver, C. B. Olkin, A. Cheng, K. Ennico, T. R. Lauer, J. Spencer, L. A. Young, and the New Horizons Science Team, A Search for Temporal Changes on Pluto and Charon, *submitted to Icarus*

## SEMINARS

University of Arizona, Lunar and Planetary Laboratory Colloquium	Jan. 2017
Georgia Institute of Technology, Planetary Seminar	Sep. 2016
Jet Propulsion Laboratory, Planetary Science Colloquium	Apr. 2016
California Institute of Technology, Dix Planetary Science Seminar	Jan. 2016
University of Western Ontario, Centre for Planetary Science and Exploration Forum	Dec. 2015
Southwest Research Institute, Space Science and Engineering Division Colloquium	Jul. 2015
Cornell University, Astronomy Department Colloquium	Feb. 2015
Colgate University, Physics and Astronomy Department Colloquium	Nov. 2014
Jet Propulsion Laboratory, Planetary Science Colloquium	Aug. 2013
Perimeter Institute, Mike Lazaridis Scholarship Seminar	Aug. 2010

## CONFERENCE ABSTRACTS AND PRESENTATIONS

1. J. D. Hofgartner, D. B. Campbell, A. G. Hayes, J. I. Lunine, The Origin of Specular Reflections from Titan's Equatorial Region, *Titan Surface Meeting*, Paris France, Nov. 2016
2. J. D. Hofgartner, B. J. Buratti, S. L. Devins, R. A. Beyer, K. Ennico, C. B. Olkin, S. A. Stern, H. A. Weaver, L. A. Young and The New Horizons Geology, Geophysics and Imaging Science Theme Team, A Search for Temporal Changes on Pluto and Charon, *American Astronomical Society Division for Planetary Sciences*, Pasadena CA, Oct. 2016
3. J. D. Hofgartner, B. J. Buratti, R. H. Brown, J. W. Barnes, C. Sotin, K. Lawrence, Erosion of Titan's Craters from Cassini RADAR and VIMS Imagery, *Lunar and Planetary Science Conference*, The Woodlands TX, Mar. 2016
4. J. D. Hofgartner, A. G. Hayes, J. I. Lunine, H. Zebker, B. W. Stiles, C. Sotin, J. W. Barnes, E. P. Turtle, K. H. Baines, R. H. Brown, B. J. Buratti, R. N. Clark, P. Encrenaz, R. D. Kirk, A. Le Gall, R. M. Lopes, R. D. Lorenz, M. J. Malaska, K. L. Mitchell, P. D. Nicholson, P. Paillou, J. Radebaugh, S. D. Wall, C. Wood, Titan's Hydrologic Cycle: Transient Events and Magic Islands, *Lakefest*, Ithaca, NY, July 2015
5. J. D. Hofgartner, A. G. Hayes, J. I. Lunine, H. Zebker, B. W. Stiles, C. Sotin, J. W. Barnes, E. P. Turtle, K. H. Baines, R. H. Brown, B. J. Buratti, R. N. Clark, P. Encrenaz, R. D. Kirk, A. Le Gall, R. M. Lopes, R. D. Lorenz, M. J. Malaska, K. L. Mitchell, P. D. Nicholson, P. Paillou, J. Radebaugh, S. D. Wall, C. Wood, Observing Dynamic Processes in Titan's Surface Liquids, *Rencontres du Vietnam, Planetary Systems: A Synergistic View*, Quy Nhon, Vietnam, July 2015
6. J. D. Hofgartner, A. G. Hayes, J. I. Lunine, H. Zebker, B. W. Stiles, C. Sotin, J. W. Barnes, E. P. Turtle, K. H. Baines, R. H. Brown, B. J. Buratti, R. N. Clark, P. Encrenaz, R. D. Kirk, A. Le Gall, R. M. Lopes, R. D. Lorenz, M. J. Malaska, K. L. Mitchell, P. D. Nicholson, P. Paillou, J. Radebaugh, S. D. Wall, C. Wood, TITAN'S MAGIC ISLAND: TRANSIENT FEATURES IN A TITAN SEA, *Lunar and Planetary Science Conference*, The Woodlands TX, Mar. 2015

7. J. D. Hofgartner, A. G. Hayes, J. I. Lunine, H. Zebker, B. W. Stiles, C. Sotin, J. W. Barnes, E. P. Turtle, K. H. Baines, R. H. Brown, B. J. Buratti, R. N. Clark, P. Encrenaz, R. D. Kirk, A. Le Gall, R. M. Lopes, R. D. Lorenz, M. J. Malaska, K. L. Mitchell, P. D. Nicholson, P. Paillou, J. Radebaugh, S. D. Wall, C. Wood, Titan's Magic Island: Transient features in a Titan sea, *American Geophysical Union*, San Francisco CA, Dec. 2014 **[Invited]**
8. J. D. Hofgartner, D. B. Campbell, A. G. Hayes, J. I. Lunine, Specular Reflections from Titan's Equatorial Region: Solving the Decade Old Mystery, *American Geophysical Union*, San Francisco CA, Dec. 2014
9. J. D. Hofgartner, A. G. Hayes, J. I. Lunine, H. Zebker, B. W. Stiles, C. Sotin, J. W. Barnes, E. P. Turtle, K. H. Baines, R. H. Brown, B. J. Buratti, R. N. Clark, P. Encrenaz, R. D. Kirk, A. Le Gall, R. M. Lopes, R. D. Lorenz, M. J. Malaska, K. L. Mitchell, P. D. Nicholson, P. Paillou, J. Radebaugh, S. D. Wall, C. Wood, The Magic of Summer: Transient Features in Titan's Seas, *Titan Surface Workshop*, Ithaca NY, Sept. 2014
10. J. D. Hofgartner, A. G. Hayes, J. I. Lunine, H. Zebker, B. W. Stiles, C. Sotin, J. W. Barnes, E. P. Turtle, K. H. Baines, R. H. Brown, B. J. Buratti, R. N. Clark, P. Encrenaz, R. D. Kirk, A. Le Gall, R. M. Lopes, R. D. Lorenz, M. J. Malaska, K. L. Mitchell, P. D. Nicholson, P. Paillou, J. Radebaugh, S. D. Wall, C. Wood, THE CASE OF TITAN'S MYSTERIOUS NEW ISLAND: ANALYSIS OF ANOMALOUSLY BRIGHT FEATURES OBSERVED IN THE CASSINI T92 SAR PASS OVER TITAN'S LIGEIA MARE, *Lunar and Planetary Science Conference*, The Woodlands TX, Mar. 2014
11. J. D. Hofgartner and J. I. Lunine, TITAN'S METHANE CYCLE IS CLOSED, *American Geophysical Union*, San Francisco CA, Dec. 2013
12. J. D. Hofgartner, A. G. Hayes, J. I. Lunine, H. Zebker, B. W. Stiles, C. Sotin, J. W. Barnes, E. P. Turtle, K. H. Baines, R. H. Brown, B. J. Buratti, R. N. Clark, P. Encrenaz, R. D. Kirk, A. Le Gall, R. M. Lopes, R. D. Lorenz, M. J. Malaska, K. L. Mitchell, P. D. Nicholson, P. Paillou, J. Radebaugh, S. D. Wall, C. Wood, The case of Titan's mysterious new island: An analysis of an anomalously bright feature observed in the T92 SAR pass over Ligeia Mare, *American Geophysical Union*, San Francisco CA, Dec. 2013
13. J. D. Hofgartner and J. I. Lunine, Hydration and Dehydration of Titan's Core and Implications for the Surface, *Titan Surface Workshop*, Boston MA, Aug. 2013

#### **PROFESSIONAL SERVICE**

Reviewer, NASA Review Panel (2 times)	2016
Referee, Icarus	2015
Leveler, NASA Review Panel	2015
Referee, Journal of Geophysical Research – Planets	2014
Workshop Co-organizer, Titan Surface Workshop, Cornell University	2014
Executive Secretary, NASA Review Panel	2014
Seminar Organizer, Cornell University Planetary Lunch Seminars	Fall 2011 – Spring 2013
Journal Club Organizer, SNOLAB Particle Astrophysics Journal Club	Fall 2009

#### **SELECTED PUBLIC OUTREACH AND PRESS ACTIVITIES**

Speaker, Cassini-Huygens Analysis and Results from the Mission	Apr. 2016
Cornell press release of <i>Titan's "Magic Islands": Transient Features in a Hydrocarbon Sea</i>	Mar. 2016
WHCU Radio Tech Minute Interview: First look at Pluto yields new discoveries	Dec. 2015
Rockland Astronomy Club, Annual Dinner Lecture	Mar. 2015
Jet Propulsion Laboratory press release of Cassini T104 observations of Titan's Magic Island	Sep. 2014
Significant press coverage including many mainstream media outlets	
Nature Geoscience press release of <i>The discovery of transient features in a Titan sea</i>	Jun. 2014
Featured in more than 60 news articles and several radio broadcasts	
Ranked first in metric for online attention of all Nature Geoscience articles of a similar age	
In the 99 <sup>th</sup> percentile in metric for online attention of more than 109,000 tracked articles of a similar age in all journals	
Master of Ceremonies, Ask an Astronomer Live	Jun. 2014
Speaker, Cornell Friends of Astronomy	Nov. 2013
Cassini press release of <i>Does ice float in Titan's lakes and seas?</i>	Jan. 2013
Panelist, Ask an Astronomer Live	Nov. 2012

**ADDITIONAL QUALIFICATIONS**

French (intermediate)	
Black belt in Okinawan Goju-Ryu	2011
Open Water Scuba Diver – Professional Association of Diving Instructors	2009
Standard First Aid, CPR-C, and AED certified	