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## Alessandra Springmann

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Lunar & Planetary Laboratory  
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### Education

#### University of Arizona

PhD Candidate, Lunar & Planetary Laboratory

Tucson, AZ

August 2014–present

#### Massachusetts Institute of Technology

Master of Science in Earth and Planetary Science

Cambridge, MA

Received June 2011

#### Wellesley College

Bachelor of Arts in Astrophysics

Wellesley, MA

Received June 2007

#### *Additional Training*

Instituto de Astrofísica de Canarias Winter School on Planetary Exploration 2016  
NASA Jet Propulsion Laboratory Planetary Science Summer School 2008

### Peer-Reviewed Publications

9. **Springmann**, A., D. S. Lauretta, B. Klaue, Y. S. Goreva, J. D. Blum, A. Andronikov, and J. K. Steckloff 2019. Thermal alteration of labile elements in carbonaceous chondrites. *Icarus* **324**, 104 – 119
8. Kareta, T., J. Andrews, J. W. Noonan, W. M. Harris, N. Smith, P. O'Brien, B. N. L. Sharkey, V. Reddy, A. **Springmann**, C. Lejoly, K. Volk, A. Conrad, and C. Veillet 2019. Carbon Chain Depletion of 2I/Borisov. *Astrophysical Journal Letters*
7. Noonan, J. W., V. Reddy, W. M. Harris, W. F. Bottke, J. A. Sanchez, R. Furfaro, Z. Brown, R. Fernandes, T. Kareta, C. Lejoly, R. Teja Nallapu, H. K. Niazi, L. R. Slick, L. Schatz, B. N. L. Sharkey, A. **Springmann**, G. Angle, L. Bailey, D. D. Acuna, C. Lewin, K. Marchese, M. Meshel, N. Quintero, K. Tatum, and G. Wilburn 2019. Search for the H Chondrite Parent Body among the Three Largest S-type Asteroids: (3) Juno, (7) Iris, and (25) Phocaea. *The Astronomical Journal* **158**(5), 213
6. Reddy, V., M. S. Kelley, D. Farnocchia, W. H. Ryan, C. A. Thomas, L. A. Benner, J. Dotson, M. Micheli, M. J. Brucker, S. J. Bus, M. Brozović, L. Wheeler, V. Abbasi, J. M. Bauer, A. Bonsall, Z. Brown, M. W. Busch, P. Chodas, Y.-J. Choi, N. Erasmus, K. E. Fast, J. P. Faucher, R. Fernandes, F. D. Ghigo, D. G. Gilbank, J. D. Giorgini,

- A. Gustafsson, O. Hainaut, W. M. Harris, J. S. Jao, L. S. Johnson, T. Kareta, M.-J. Kim, D. Koschny, E. A. Kramer, R. R. Landis, D. G. Laurin, J. A. Larsen, C. G. Lee, C. Lejoly, T. Lister, R. McMillan, J. R. Masiero, D. Mathias, M. Mommert, H.-K. Moon, N. A. Moskovitz, S. P. Naidu, R. T. Nallapu, H. K. Niazi, J. Noonan, D. Polishook, E. V. Ryan, L. Schatz, J. V. Scotti, B. Sharkey, B. M. Shustov, A. A. Sickafoose, M. A. Silva, M. A. Slade, L. Slick, L. G. Snedeker, A. **Springmann**, D. Tholen, D. E. Trilling, A. Q. Vodniza, R. Wainscoat, R. Weryk, and M. Yoshikawa 2019. Near-Earth asteroid 2012 TC4 campaign: Results from global planetary defense exercise. *Icarus*
5. Shepard, M. K., B. Timerson, D. J. Scheeres, L. A. M. Benner, J. D. Giorgini, E. S. Howell, C. Magri, M. C. Nolan, A. **Springmann**, P. A. Taylor, and A. Virkki 2018. A revised shape model of asteroid (216) Kleopatra. *Icarus* **311**, 197–209
  4. Crowell, J. L., E. S. Howell, C. Magri, M. C. Nolan, Y. R. Fernández, J. E. Richardson, B. D. Warner, S. E. Marshall, A. **Springmann**, and R. J. Vervack 2017. Radar and Lightcurve Shape Model of Near-Earth Asteroid (1627) Ivar. *Icarus* **291**, 254–267
  3. Shepard, M. K., P. A. Taylor, M. C. Nolan, E. S. Howell, A. **Springmann**, J. D. Giorgini, B. D. Warner, A. W. Harris, R. Stephens, W. J. Merline, A. Rivkin, L. A. M. Benner, D. Coley, B. E. Clark, M. Ockert-Bell, and C. Magri 2015. A radar survey of M- and X-class asteroids. III. Insights into their composition, hydration state, & structure. *Icarus* **245**, 38–55
  2. Person, M. J., E. W. Dunham, A. S. Bosh, S. E. Levine, A. A. S. Gulbis, A. M. Zangari, C. A. Zuluaga, J. M. Pasachoff, B. A. Babcock, S. Pandey, D. Amrhein, S. Sallum, D. J. Tholen, P. Collins, T. Bida, B. Taylor, L. Bright, J. Wolf, A. Meyer, E. Pfueller, M. Wiedemann, H. P. Roeser, R. Lucas, M. Kakkala, J. Ciotti, S. Plunkett, N. Hiraoka, W. Best, E. J. Pilger, M. Micheli, A. **Springmann**, M. Hicks, B. Thackeray, J. P. Emery, T. Tilleman, H. Harris, S. Sheppard, S. Rapoport, I. Ritchie, M. Pearson, A. Mattingly, J. Brimacombe, D. Gault, R. Jones, R. Nolthenius, J. Broughton, and T. Barry 2013. The 2011 June 23 Stellar Occultation by Pluto: Airborne and Ground Observations. *The Astronomical Journal* **146**, 83
  1. **Springmann**, A., and C. C. Cheung 2007. Host Galaxies of X-Shaped Radio Sources. *U.S. Department of Energy Journal of Undergraduate Research*, 97–102

## Selected Research Experience

Arecibo Observatory, National Astronomy and Ionosphere Center      Arecibo, Puerto Rico  
 Data Analyst and Observing Support, Planetary Radar Group      October 2012–July 2014

- Observed dozens of near-Earth asteroids and comets annually; processed data in real-time to ensure data quality
- Analyzed 10 years of Arecibo planetary radar observations of near-Earth asteroids to ensure data consistency
- Submitted asteroid shape model for OSIRIS-REx asteroid sample return mission to Planetary Data System

NASA Jet Propulsion Laboratory Planetary Ices Laboratory  
Graduate Student Research Affiliate

Pasadena, CA  
June–August 2009

- Measured the rotation rate of asteroid/comet crossover object (4015) Wilson-Harrington
- Determined the orbits of five near-Earth asteroids with a 0.61-m telescope at JPL's Table Mountain Observatory

## Awards & Honors

- Lunar & Planetary Laboratory Andersson Service Award April 2019
- College of Science Service Award for LPL March 2019
- University of Arizona College of Science Galileo Circle Scholarship February 2017
- Division for Planetary Sciences/AAS Hartmann Student Travel Grant November 2015
- MIT Dept. of Earth, Atmospheric, and Planetary Sciences Award for Excellence in Teaching May 2009, May 2011
- MIT Presidential Fellowship Recipient 2007–2008

## Teaching Experience

*Award-winning instructor with 6+ years of domestic and international classroom/experiential teaching and tutoring experience to university and high school students in observational astronomy, planetary science, physics, mathematics, computer science, and business skills.*

## Seminars and Colloquia

- **European Southern Observatory**, Munich, Germany September 2019
- **Agnes Scott College**, Decatur, GA March 2019
- **UC San Diego**, San Diego, CA November 2017
- **Dominion Radio Astrophysical Observatory**, Kaleden, BC September 2017
- **University of Arizona**, Origins Seminar, Tucson, AZ October 2016
- **SETI Institute**, Mountain View, CA August 2015
- **Harvard-Smithsonian Center for Astrophysics** Cambridge, MA June 2015
- **Planetary Science Institute**, Tucson, AZ September 2014
- **Lowell Observatory**, Flagstaff, AZ August 2014
- **SRI International**, Menlo Park, CA July 2014
- **UC Berkeley**, Radio Astronomy Laboratory, Berkeley, CA July 2014
- **Southwest Research Institute**, Boulder, CO July 2014

- **NASA/National Geographic** FameLab finalist, Washington, DC April 2014  
youtu.be/z0szwfdUsJg
- **NASA/National Geographic** FameLab winner, Houston, TX March 2013  
youtu.be/1msVEwHt0mg

### Observing Experience

- Gordon 305-m telescope/planetary radar system Arcibo Observatory, Puerto Rico
- Magellan 6.5-m Baade telescope Las Campanas Observatory, Chile
- NASA 3.0-m Infrared Telescope Facility (remote observing) Mauna Kea, HI
- Bok 2.28-m telescope Kitt Peak National Observatory, AZ
- Kuiper 1.54-m telescope Catalina Station, Mount Bigelow, AZ
- Kagoshima University 1.0-m telescope Kagoshima University Observatory, Japan
- Nickel 1.0-m telescope Lick Observatory, Mount Hamilton, CA

### Leadership and Service

- Panelest, National Academies of Science, Engineering, and Medicine  
Action Collaborative Summit: Preventing Sexual Harassment in Higher Education  
University of Washington November 2019
- Lunar & Small Bodies Graduate Conference co-organizer 2016–present
- LPL department colloquium graduate organizer 2015–present
- Lunar & Planetary Laboratory graduate alumni chair 2015–present
- Moderator for a forum of 1200+ Wellesley alumnæ in academia 2011–present
- LPL Department Life website co-creator February 2018
- Organized supply drive after Hurricane María for Arcibo communities October 2017
- Women in Optics “Launching Your Career” panel participant April 2016
- Instigator of DPS Allyship Auxiliary November 2015
- Discussion lead about harassment in astronomy at LPL and NOAO October 2015
- Executive Secretary for three NASA Planetary Science review panels 2014–2015
- ISEE-3 Spacecraft Reboot Arcibo Radar Transmitter Switcher June 2014
- Arcibo Observatory colloquium organizer 2013–2014

### Professional Affiliations

- Division for Planetary Sciences, American Astronomical Society
- Geological Society of America
- Small Bodies Assessment Group

## Outreach

### *Public presentations*

- **Robert Ferguson Observatory**, Rogoff-Lee Wedding, Kenwood, CA August 2019
- **Boise State University** First Friday Astronomy Event, Boise, ID June 2019
- **Tellus Science Museum** Meteorite Symposium, Cartersville, GA March 2019
- **San Diego City College**, San Diego, CA November 2017
- **Okanagan College**, Kelowna, BC September 2017
- **Boise State University** (remote), Boise, ID October 2016
- **Meteor, Inc.**, San Francisco, CA August 2016
- **Lucasfilm Ltd.**, San Francisco, CA June 2016
- **Davidson Institute for Talent Development**, Reno, NV June 2015
- **Space Drafts Public Talk Series**, Tucson, AZ May 2015
- **Sonora Astronomical Society**, Green Valley, AZ March 2015
- **Tucson Amateur Astronomy Association**, Tucson, AZ November 2014
- **NASA/National Geographic** FameLab national finalist  
Washington, DC, [youtu.be/z0szwfdUsJg](https://youtu.be/z0szwfdUsJg) April 2014
- **NASA/National Geographic** FameLab regional winner  
Houston, TX, [youtu.be/1msVEwHtOmg](https://youtu.be/1msVEwHtOmg) March 2013

### *K-12 Presentations and Activities*

- Panelist for a STEM competition of vision impaired high school students demonstrating science concepts, University of Arizona, Tucson, AZ June 2019
- Panelist on STEM majors at Small Liberal Arts Colleges  
BASIS High School, Tucson, AZ November 2018
- 150 visitors at Spacefest, Tucson, AZ June 2018
- 100 visitors at the Tohono O'odham Rodeo, Sells, AZ February 2016
- 150 MS/HS students on the Tohono O'odham Nation, Sells, AZ July 2015
- 30 HS students visiting from Norway, Tucson, AZ March 2015
- 20 HS students at Marin Academy High School, San Rafael, CA September 2013

### *Selected Press Interviews/Coverage*

- BBC Earth (web) July 2019
- Planetary Science Research Discoveries CosmoSparks (web) June 2019
- Boise State Public Radio (radio) June 2019
- Gizmodo (web) March 2019
- Delmarva Daily Times (print) February 2019
- CosmoQuest Hangoutathon (livestreaming) December 2018
- Wired.co.uk (web) September 2018

Space.com (web)	August 2018
Science Trends (web)	August 2018
Wired.co.uk (web)	July 2018
Wellesley Magazine (print)	July 2018
Gizmodo (web)	March 2018
Inverse (web)	March 2018
Newsweek (web)	December 2017
CNN (TV)	September 2016
CNN (web)	September 2016
Washington Post (web)	September 2016
New Scientist (print)	September 2016
20+ episodes of the Weekly Space Hangout (livestreaming)	2013–2016
The Orbital Mechanics (podcast)	August 2016
SpaceNews (web)	July 2015
Arizona Daily Star (print)	May 2015
Ars Technical (web)	April 2015
CosmoQuest Hangoutathon (livestreaming)	April 2015
The Planetary Society Blog (web)	March 2015
Arizona Daily Star (print)	January 2015
National Geographic (web)	November 2014
MIT Alumni Slice of MIT (web)	September 2014
Best Frequencies Forever (radio)	July 2014
The Planetary Society Blog (web)	June 2014
Space Daily (web)	June 2014
NBCNews.com (web)	June 2014
The Planetary Science Blog (web)	April 2014
CosmoQuest Hangoutathon (livestreaming)	April 2014
Universe Today (web)	May 2014
Astronomy Cast (podcast)	March 2014
Best Frequencies Forever (radio)	January 2014

### Popular Science Writing & Press Releases

“Arecibo Observatory Faces Uncertain Future.” Sky & Telescope	November 2016
“The Final Flights: Review of <i>Leaving Orbit</i> ” Wellesley Magazine	April 2015
“How Arecibo Observatory Transmits to the ISEE-3 Spacecraft” The Planetary Society	July 2014
Press release on Arecibo Observatory observations of asteroid 2014 HQ <sub>124</sub>	June 2014
Press release on Arecibo Observatory observations of comet 209P/LINEAR	May 2014
“Arecibo Observatory operational after repairs to fix earthquake damage” The Planetary Society	April 2014
Press release on Arecibo Observatory observations of asteroid 1998 QE <sub>2</sub>	June 2013

“How radar really works: The steps involved before getting an image” The Planetary Society	April 2013
“Arecibo Planetary Radar looks at asteroids that safely pass the Earth” SRI International	February 2013
“Seven Minutes of Terror: NASA’s Curiosity Rover to Land on Mars This Weekend” PCWorld	August 2012

### *Social Media*

Tweeting planetary science and life of a scientist at @sondy	(~ 7,700 followers Feb 2019)
Feline and radar/radio astronomy at @ObservatoryCats	(~ 4,500 followers Feb 2019)
Curated @astrotweeps rotating Twitter account	July 2014
Social media manager for Arecibo Observatory planetary radar (@AreciboRadar)	2013–2014

### **Field Studies**

- Death Valley and Amargosa Basin, Geological Society of America Foundation 2019
- Petrified Forest, Painted Desert, Canyon de Chelly, LPL 2018
- Mojave Desert and Death Valley, LPL 2018
- Salton Sea and Colorado Desert, LPL 2015
- Northern Arizona ‘Holey Tour’, LPL 2015

### **Selected Conference Proceedings & White Papers**

16. **Springmann, A.**, and 10 others. Modeling the large-grain (> 2 cm) coma of comet 45P/Honda-Mrkos-Pajdušáková from Arecibo Observatory radar observations. *AAS/Division for Planetary Sciences Meeting, #50*, Knoxville, TN, 2018.
15. **Springmann, A.**, and 6 others. 1994 CJ1: a binary NHATS/PHA with equal size components. *Joint ISAS-LPL Workshop on Planetary Science Enabled by Epsilon Class Missions*, Tucson, AZ, 2017.
14. **Springmann, A.**, and 11 others. Particle sizes in the coma of Comet 45P/Honda-Mrkos-Pajdušáková from Arecibo radar observations. *AAS/Division for Planetary Sciences Meeting, #49*, Provo, UT, 2017.
13. **Springmann, A.** and D.S. Lauretta. Thermal History of Near-Earth Asteroids: Implications for OSIRIS-REx Asteroid Sample Return. *AAS/Division for Planetary Sciences Meeting, #48*, Pasadena, CA, 2016.
12. **Springmann, A.**, D.S. Lauretta, J.K. Steckloff. Thermal alteration in carbonaceous chondrites and implications for sublimation in rock comets. *AAS/Division for Planetary Sciences Meeting, #47*, National Harbor, MD, 2015.
11. **Springmann, A.**, and 10 others. Radar-Derived Shape Model of Near-Earth Binary Asteroid System (285263) 1998 QE2. *AAS/Division for Planetary Sciences Meeting, #46*, Tucson, AZ, 2014.

10. **Springmann, A.**, and 7 others. Radar Derived Shape Model of Binary Near-Earth Asteroid (285263) 1998 QE2. *Lunar and Planetary Science Conference #45, #1313*, Houston, TX, 2014.
9. **Springmann, A.**, and 20 others. Binary Near-Earth Asteroid (285263) 1998 QE2: Goldstone and Arecibo Radar Imaging and Lightcurve Observations. *AAS/Division for Planetary Sciences Meeting, #45*, Denver, CO, 2013.
8. **Springmann, A.**, and 3 others. Are the radar scattering properties of near-Earth asteroids correlated with size, shape, or spin? *Lunar and Planetary Science Conference #44, #1719*, Houston, TX, 2013.
7. **Springmann, A.**, and 9 others. Physical and orbital properties of the (22) Kalliope system from mutual eclipse observations. *Asteroids, Comets, Meteors, #6352*, Niigata, Japan, 2012.
6. Rivkin, A.S. and 13 others including **Springmann, A.** *The Trojan Asteroids: Keys to Many Locks*. Planetary Decadal Survey White Paper, 2009.
5. **Springmann, A.**, and 18 others. Designing a New Frontiers-class Trojan/Centaur Reconnaissance Mission: A JPL Planetary Science Summer Study. *AAS/Division for Planetary Sciences Meeting #40, #18.09*, Ithaca, NY, 2008.
4. Binzel, R. P. and 11 others including **Springmann, A.** Spectral Properties of Near-Earth Object Mission Targets. *Asteroids, Comets, Meteors, paper id. 8228*, Baltimore, MD, 2008.
3. **Springmann, A.**, Kern, S.D., Binzel, R.P. Lightcurve Observations of Nix and Hydra Using the Magellan Telescopes. *AAS/Division for Planetary Sciences Meeting #39*, Orlando, FL, 2007.
2. **Springmann, A.** and Cheung, C.C. Host Galaxies of X-Shaped Extragalactic Radio Sources. *American Association for the Advancement of Science Annual Meeting*, San Francisco, CA, 2007.
1. **Springmann, A.** and Cheung, C.C. Host Galaxies of X-Shaped Radio Sources. *AAS/AAPT Joint Meeting, American Astronomical Society Meeting 209, #252.06*, Seattle, WA, 2007.

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