

Benjamin D. Byron
Postdoctoral Scholar
Jet Propulsion Laboratory, Pasadena CA
benjamin.d.byron@jpl.nasa.gov

Ph.D, Physics, University of Texas at San Antonio, 2020
M.S., Physics, University of Texas at San Antonio, 2018
B.S., Physics, University of Texas at Dallas, 2014

Dr. Byron is a postdoctoral researcher at the Jet Propulsion Laboratory in Pasadena, California, analyzing nighttime temperature observations from the Diviner Lunar Radiometer instrument onboard LRO in order to investigate the thermophysical properties of the lunar surface. Prior to this, he was a graduate research assistant at the University of Texas at San Antonio and Southwest Research Institute, working with the Lyman Alpha Mapping Project (LAMP) team under the direction of Dr. Kurt Retherford. His dissertation focused on studying the effects of space weathering and other surface processes/properties on the far-UV reflectance of the lunar regolith as observed by LRO LAMP. Dr. Byron has experience analyzing and interpreting remote sensing data sets from a number of lunar orbiting spacecraft (including LRO, Kaguya, and Clementine) with the goal of better understanding lunar regolith physical properties. He has published multiple papers in peer-reviewed journals on these topics, and has presented his research at scientific conferences such as LPSC and AGU.

Research Experience

NASA Jet Propulsion Laboratory, Postdoctoral Scholar, 2020-present
University of Texas at San Antonio/Southwest Research Institute, Graduate Research Assistant, 2016-2020
NASA Goddard Space Flight Center, Summer Intern, 2017
University of Texas at Dallas, Undergraduate Research Assistant, 2013-2014

Research Focus

Ultraviolet - Infrared Remote Sensing, Lunar Space Weathering, Regolith Surface/Subsurface Properties

Publications

Byron, B. D., Elder, C. M., Williams, J.-P., Ghent, R. R., Gallinger, C. L., Hayne, P. O., & Paige, D. A. (2022). Thermophysical Properties of Lunar Irregular Mare Patches from LRO Diviner Radiometer Data. *Journal of Geophysical Research: Planets*, 127, <https://doi.org/10.1029/2022JE007214>

Magaña, L. O., Retherford, K. D., **Byron, B. D.**, Hendrix, A. R., Grava, C., Mandt, K. E., et al. (2022). LRO-LAMP Survey of Lunar South Pole Cold Traps: Implication for the Presence of Condensed H₂O. *Journal of Geophysical Research: Planets*, e2022JE007301.

Byron, B. D., Retherford, K. D., Czajka, E., Cahill, J. T. S., Hendrix, A. R., & Greathouse, T. K. (2021). Lunar Surface Composition Constraints from Maturity-Corrected Far-Ultraviolet Reflectance Maps. *The Planetary Science Journal*, 2(5), 189. <https://doi.org/10.3847/PSJ/ac1d53>

Byron, B. D., Retherford, K. D., Greathouse, T. K., Wyrick, D., Cahill, J. T. S., Hendrix, A. R., et al. (2020). Far-UV Observations of Lunar Rayed Craters with LRO-LAMP. *Journal of Geophysical Research: Planets*, 125. <https://doi.org/10.1029/2019JE006269>

Byron, B. D., Retherford, K. D., Greathouse, T. K., Mandt, K. E., Hendrix, A. R., Poston, M. J., ... & Mazarico, E. (2019). Effects of Space Weathering and Porosity on the Far-UV Reflectance of Amundsen Crater. *Journal of Geophysical Research: Planets*, 124(3), 823-836. <https://doi.org/10.1029/2018JE005908>

Hue, V., Gladstone, G. R., Greathouse, T. K., Kammer, J. A., Davis, M. W., Bonfond, B., Versteeg, M. H., Grodent, D. C., Gérard, J.-C., Bolton, S. J., Levin, S. M., & **Byron, B. D.** (2019). In-flight characterization and calibration of the Juno-ultraviolet spectrograph (Juno-UVS). *The Astronomical Journal*, 157, 90

Conference Presentations

Byron, B.D., Elder, C. M., Glotch, T. D., Hayne, P. O., “Low-Thermal Inertia Material at Lunar Red Spots: Observations from the LRO Diviner Lunar Radiometer Experiment”, *LPSC*, Houston, TX, 2022.

Byron, B.D., Elder, C. M., Williams, J. P., Ghent, R. R., Gallinger, C. L., Hayne, P. O., “Thermophysical Properties of Irregular Mare Patches”, *AGU Fall Meeting*, New Orleans, LA, 2021.

Byron, B.D., Elder, C. M., Williams, J. P., Ghent, R. R., “Thermophysical Properties of Irregular Mare Patches”, *GSA Connects 2021*, Portland, OR, 2021.

Byron, B.D., Retherford, K. D., Greathouse, T. K., Wyrick, D., Whizin, A., Cahill, J.T.S., Hendrix, A. R., Magana, L., Czajka, E., "Global Spectral Analysis of the Lunar Surface in the Far-UV" *AGU Fall Meeting*, San Francisco, CA, 2019.

Byron, B.D., Retherford, K.D., Wyrick, D., Greathouse, T.K., Cahill, J.T.S., Hendrix, A.R., “Far-UV Observations of Lunar Rayed Craters”, *EPSC-DPS 2019*, Geneva, CH, 2019.

Byron, B.D., Retherford, K.D., Mandt, K.E., Greathouse, T.K., Gladstone, G.R., “Porosity Maps of the Lunar Surface Derived from LRO-LAMP Albedo Data”, *LPSC*, Houston, TX, 2019.

Byron, B.D., Retherford, K.D., Mandt, K.E., Greathouse, T.K., “Investigating Signatures of Space Weathering in the Far-UV Using LRO-LAMP”, *AGU Fall Meeting*, Washington, DC 2018.

Byron, B.D., Retherford, K.D., “Far-Ultraviolet Observations and Analysis of Potential South Pole Landing Sites Using LRO-LAMP”, *Lunar Polar Volatiles Workshop*, Laurel, MD 2018.

Byron, B.D., “Effects of space weathering and porosity on the far-UV reflectance of Amundsen Crater,” *LunGradCon*, Mountain View, CA 2018.

Byron, B.D., Mazarico, E., Retherford, K.D., Mandt, K.E., Greathouse, T.K., Gladstone, G.R. "Modeling Illumination Conditions on the Moon: Applications to LRO-LAMP," *AGU Fall Meeting*, New Orleans, LA 2017.

Professional Service

NASA ROSES Review Panelist, 2020, 2021

NASA Planetary Data System Review Panelist, 2022

American Geophysical Union Fall Meeting OSPA Judge, 2021

Public Outreach

Astronomy on Tap San Antonio contributor, 2019 Witte Museum event

Alamo City Comic Con Exhibitor, San Antonio, TX, Oct. 2017

UTSA Graduate Society of Physics Student Officer, 2016

Honors and Awards

Selected for JPL Planetary Science Mission Design Summer School, 2022

Selected for Meteor Crater Field Training and Research Program, Oct. 2018

Selected for NASA Goddard Space Flight Center Summer Internship, 2017

Professional Memberships

American Geophysical Union (AGU)

Geological Society of America (GSA)