

Brandon C. Johnson

Associate Professor

Department of Earth, Atmospheric, and Planetary Sciences
 Purdue University
 550 Stadium Mall Drive
 West Lafayette, IN 47907

Email: bcjohnson@purdue.edu
 Phone: 765.337.5041
 Office: HAMP 3227
 Web: brandoncjohnson.com

Education

Ph.D. Physics, “The formation of distal impact ejecta”, Advisor H. Jay Melosh
 2013 – Purdue University

B.S. Physics with Mathematical Sciences Minor (summa cum laude)
 2009 – Michigan Technological University

Professional Appointments

Purdue University

2020 – Present Associate Professor of Physics and Astronomy by Courtesy
 2019 – Present Associate Professor of Earth, Atmospheric, and Planetary Sciences

Brown University

2015 – 2019 Assistant Professor of Earth, Environmental and Planetary Sciences

Massachusetts Institute of Technology

2014 – 2015 Postdoctoral Associate – Advisor: Maria Zuber

Purdue University

2010 – 2014 Graduate Research Assistant – Advisor: H. Jay Melosh
 2009 – 2010 Graduate Research Assistant
 2009 – 2010 Graduate Teaching Assistant

Michigan Technological University

2006 – 2009 Undergraduate Research Assistant
 2006 – 2009 Undergraduate Teaching Assistant

Publications

*Denotes Student Advisee †Denotes Postdoctoral Advisee

Submitted / in press

Kalousová, K., S. Wakita, C. Sotin, C. D. Neish, J. M. Soderblom, O. Souček, **B. C. Johnson**.
 Evolution of impact melt pools on Titan. (*J. Geophys. Res. Planets* in press)

Cashion*, M. D., **B. C. Johnson**, H. Gibson, E. P. Turtle, M. M. Sori, H. J. Melosh. Europa’s
 Double Ridges Produced by Ice Wedging. (*J. Geophys. Res. Planets* in press)

Izquierdo, K., M. M. Sori, B. Checketts, I. Hampton, **B. C. Johnson**, J. M. Soderblom. Global
 Distribution and Volume of Cryptomare and Visible Mare on the Moon from Gravity and
 Dark Halo Craters. (*J. Geophys. Res. Planets* in press)

Nichols-Fleming*, F., A. J. Evans, **B. C. Johnson**, M. M. Sori. Moment of Inertia and Tectonic
 Record of Asteroid 16 Psyche May Reveal Interior Structure and Core Solidification
 Processes. (revision submitted *J. Geophys. Res. Planets*)

- Alexander, A. M., S. Marchi, **B. C. Johnson**, S. E. Wiggins[†], D. A. Kring. Impact-generated fragmentation, porosity and permeability within the Chicxulub impact structure. (*Earth and Space Sci.* in revision)
- Wakita[†], S., **B. C. Johnson**, E. A. Silber, and K. N. Singer. Multiring basin formation constrains Europa's ice shell thickness. (revision submitted to *Science Advances*)
- Nichols-Fleming^{*}, F., A. J. Evans, **B. C. Johnson**, S. M. Tikoo. The Influence of Cool Impactor Accretion on the Early Lunar Paleomagnetic Record. (revision submitted to *J. Geophys. Res. Planets*)
- Herd, C. D. K., J. S. Hamilton, E. L. Walton, L. L. Tornabene, A. Lagain, G. K. Benedix, A. I. Sheen, H. J. Melosh, **B. C. Johnson**, S. E. Wiggins[†], T. G. Sharp, J. R. Darling. The Source Craters for Martian Meteorites: Implications for the Igneous Evolution of Mars. (submitted to *Science Advances*)

Published

- [73] Osinski, G. R., H. J. Melosh, et al. Lunar Impact Features and Processes. *Reviews in Mineralogy and Geochemistry* 89, 339–371 (2023).
- [72] Carlson^{*}, M. A., H. J. Melosh, **B. C. Johnson**. Atmospheric Interactions of Ejecta on Earth and Mars Including the Effect of Vaporization. *The Planetary Science Journal* 4:194 (2023).
- [71] Krot, A. N., K. Nagashima, M. A. Ivanova, D. Lauretta, G. Libourel, **B. C. Johnson**, F. E. Brenker, V. Hoffman, M Bizzaro. Mineralogy, petrology, and oxygen isotopic composition of chondritic and achondritic lithologies in the anomalous CB carbonaceous chondrites Sierra Gorda 013 and Fountain Hills. *Meteoritics and Planetary Science* <https://doi.org/10.1111/maps.14072> (2023).
- [70] Gosselin^{*}, G. J., A. M. Freed, **B. C. Johnson**. Crustal Block and Muted Ring Development During the Formation of Mercury's Caloris Megabasin. *J. Geophys. Res. Planets*, 128, e2023JE007920 (2023).
- [69] Maruzzi, S., J. C. Andrews-Hanna, P. Schenk, **B. C. Johnson**. Pluto's Sputnik Basin as a Peak-Ring or Multiring Basin: A Comparative Study. *Icarus*, 405, 115721 (2023).
- [68] Bjonnes^{*}, E., **B. C. Johnson**, J. C. Andrews-Hanna, Basin Crustal Structure at the Multiring Basin Transition. *J. Geophys. Res. Planets*, 128, e2022JE007507 (2023).
- [67] Denton^{*}, C. A., G. J. Gosselin^{*}, A. M. Freed, **B. C. Johnson**. The formation and evolution of Pluto's Sputnik basin prior to nitrogen ice fill. *Icarus*, 398, 115541 (2023).
- [66] Wakita[†], S., **B. C. Johnson**, J. M. Soderblom, J. Shah, C. D. Neish, J. K. Steckloff. Modeling the formation of Selk impact crater on Titan: Implications for Dragonfly. *The Planetary Science Journal*, 4, 51 (2023).
- [65] Steckloff, J. K., G. Sarid, **B. C. Johnson**, The effects of early collisional evolution of amorphous water ice bodies. *The Planetary Science Journal*, 4, 4 (2023).
- [64] Range, M. M., B. K. Arbic, **B. C. Johnson**, T. C. Moore, V. Titov, A. J. Adcroft, J. K. Ansong, C. J. Hollis, J. Ritsema, C. R. Scotese, H. Wang. The Chicxulub impact produced a powerful global tsunami. *AGU Advances*, 3, e2021AV000627 (2022).

- [63] Wakita[†], S., H. Genda, K. Kurosawa, T. M. Davison, **B. C. Johnson**, Effect of impact velocity and angle on deformational heating and post-impact temperature. *J. Geophys. Res. Planets* 127, e2022JE007266 (2022).
- [62] Wiggins^{*}, S. E., **B. C. Johnson**, G. Collins, H. J. Melosh, S. Marchi. Widespread Impact-Generated Porosity in Early Terrestrial Crusts. *Nature Communications* 13, 4817 (2022).
- [61] Cashion^{*}, M. D., **B. C. Johnson**, A. N. Krot, K. Kretke, S. Wakita[†], T. M. Davison. Chondrule formation via impact jetting in the icy outer solar system. *Icarus* 384, 115110 (2022).
- [60] Lisse, C. M., M. L. Sitko, S. J. Wolk, H. M. Günther, S. Brittan, J. D. Green, J. Steckloff, **B. C. Johnson**, C. C. Espaillat, M. Koutoulaki, S. Y. Moorman, A. P. Jackson. RW Aur A: SpeX Spectral Evidence for Differentiated Planetesimal Formation, Migration, and Destruction in an ~3 Myr Old Excited CTTS System. *The Astrophysical Journal* 928, 189 (2022).
- [59] Jones^{*}, M. J., A. J. Evans, **B. C. Johnson**, M. B. Weller, J. C. Andrews-Hanna, S. M. Tikoo, J. T. Keane. A South Pole-Aitken Impact Origin of the Lunar Compositional Asymmetry. *Science Advances* 8, eabm8475 (2022).
- [58] Bjonnes^{*}, E., **B. C. Johnson**, E. A. Silber, K. N. Singer, A. J. Evans, Ice shell structure of Ganymede and Callisto based on impact crater morphology. *J. Geophys. Res. Planets* 127, e2021JE007028 (2022).
- [57] Kenny, G. G., W. R. Hyde, M. Storey, A. A. Garde, M. J. Whitehouse, P. Beck, L. Johansson, A. S. Søndergaard, A. A. Bjørk, J. A. MacGregor, S. A. Kahn, J. Mougnot, **B. C. Johnson**, E. A. Silber, D. K. P. Wielandt, K. H. Kjær, N. K. Larsen. A Late Paleocene age for Greenland's Hiawatha impact structure. *Science Advances* 8, eabm2434 (2022).
- [56] Wakita[†], S., **B. C. Johnson**, J. M. Soderblom, J. Shah, C. D. Neish. Methane-saturated layers limit the observability of impact craters on Titan. *The Planetary Science Journal* 3, 50 (2022).
- [55] Nichols-Fleming^{*}, F., A. J. Evans, **B. C. Johnson**, M. M. Sori. Porosity Evolution in Metallic Asteroids: Implications for the Origin and Thermal History of Asteroid 16 Psyche. *J. Geophys. Res. Planets* 127, e2021JE007063 (2022).
- [54] Elliott^{*}, J. R., H. J. Melosh, **B. C. Johnson**. The role of target strength on the ejection of Martian meteorites. *Icarus* 375, 114869 (2022).
- [53] Krot, A. N., M. I. Petaev, K. Nagashima, E. Dobrică, **B. C. Johnson**, M. D. Cashion^{*}. Impact plume-formed and protoplanetary disk high-temperature components in CB and CH metal-rich carbonaceous chondrites. *Meteoritics & Planetary Science* 2, 352–380 (2022).
- [52] Izquierdo, K., M. M. Sori, J. M. Soderblom, **B. C. Johnson**, S. E. Wiggins^{*}. Lunar Megaregolith Structure Revealed by GRAIL Gravity Data. *Geophys. Res. Lett.* 48, e2021GL095978 (2021).

- [51] Wakita[†], S., **B. C. Johnson**, I. Garrick-Bethell, M. R. Kelley, R. E. Maxwell, T. M. Davison. Impactor material records the ancient lunar magnetic field in antipodal anomalies. *Nature Communications* 12, 6543 (2021).
- [50] Crosta, A. P., E. A. Silber, M. C. Lopes, **B. C. Johnson**, E. Bjonnes^{*}, M.J. Malaska, S. D. Vance, C. Sotin, A. Solomonidou, J. M. Soderblom. Modeling the formation of Menrva crater on Titan: Implications for habitability. *Icarus* 370, 114679 (2021).
- [49] Steckloff, J. K., J. Debes, A. Steele, **B. C. Johnson**, E. R. Adams, S. A. Jacobson, A. Springmann. How Sublimation Delays the Onset of Dusty Debris Disk Formation around White Dwarf Stars. *The Astrophysical Journal Letters* 913, L31 (2021).
- [48] **Johnson, B. C.**, R. E. Milliken, K. W. Lewis, G. S. Collins. Impact generated porosity in Gale crater and implications for the density of sedimentary rocks in lower Aeolis Mons. *Icarus* 366, 114539 (2021).
- [47] Silber[†], E. A., **B. C. Johnson**, E. Bjonnes^{*}, J. A. MacGregor, N. K. Larsen, S. E. Wiggins^{*}. Effect of ice sheet thickness on formation of the Hiawatha impact crater. *Earth and Planetary Science Letters* 566, 116972 (2021).
- [46] Wakita[†], S., **B. C. Johnson**, C. A. Denton^{*}, T. M. Davison. Jetting during oblique impacts of spherical impactors. *Icarus* 360, 114365 (2021).
- [45] Bjonnes^{*}, E., **B. C. Johnson**, A. J. Evans. Estimating Venusian thermal conditions using multiring basin morphology. *Nature Astronomy* 5, 498–502 (2021).
- [44] Denton^{*}, C. A., **B. C. Johnson**, S. Wakita[†], A. M. Freed, H. J. Melosh, S. A. Stern. Pluto's antipodal terrains imply a thick subsurface ocean and hydrated core. *Geophys. Res. Lett.* 84, e2020GL091596 (2021).
- [43] **Johnson, B. C.**, M. M. Sori. Landslide morphology and mobility on Ceres controlled by topography. *J. Geophys. Res. Planets* 125, e2020JE006640 (2020).
- [42] Raymond, C. A., A. I. Ermakov, J. C. Castillo-Rogez, S. Marchi, **B. C. Johnson**, J. E. C. Scully, D. L. Buczkowski, H. G. Sizemore, P. M. Schenk, A. Nathues, R. S. Park, T. H. Prettyman, M. D. Rayman, C. T. Russell. Impact-driven mobilization of deep crustal brines on dwarf planet Ceres. *Nature Astronomy* 4, 741–747 (2020).
- [41] Trowbridge^{*}, A. J., **B. C. Johnson**, A. M. Freed, H. J. Melosh. Why the Lunar South Pole-Aitken Basin is not a Mascon. *Icarus* 352, 113995 (2020).
- [40] Lisse, C. M., H. Y. A. Meng, M. L. Sitko, A. Morlok, **B. C. Johnson**, A. P. Jackson, R. J. Vervack, C. H. Chen, S. J. Wolk, M. D. Lucas, M. Marengo, D. T. Britt. HD 145263: Spectral Observations of Silica Debris Disk Formation via Extreme Space Weathering? *The Astrophysical Journal* 894, 116 (2020).
- [39] Bowling, T. J., **B. C. Johnson**, S.E. Wiggins^{*}, E. L. Walton, H. J. Melosh, T. G. Sharp. Dwell time at high pressure of meteorites during impact ejection from Mars. *Icarus* 343, 113689 (2020).
- [38] Bowling, T. J., **B. C. Johnson**, S. Marchi, M. C. De Sanctis, J. C. Castillo-Rogez, C. A. Raymond. An endogenic origin of cerean organics. *Earth and Planetary Science Letters* 534, 116069 (2020).

- [37] **Johnson, B. C.**, M. M. Sori, A. J. Evans. Ferrovolcanism on metal worlds and the origin of pallasites. *Nature Astronomy* 4, 41–44 (2020).
- [36] Wiggins*, S. E., **B. C. Johnson**, T. J. Bowling, H. J. Melosh, E. A. Silber†. Impact Fragmentation and the Development of the Deep Lunar Megaregolith. *J. Geophys. Res. Planets* 124, 941–957 (2019).
- [35] Bowling, T. J., F. J. Ciesla, T. M. Davison, J. E. C. Scully, J. C. Castillo-Rogez, S. Marchi, **B. C. Johnson**. Post-impact thermal structure and cooling timescales of Occator crater on asteroid 1 Ceres. *Icarus* 320, 110–118 (2019).
- [34] **Johnson, B. C.**, J. C. Andrews-Hanna, G. S. Collins, A. M. Freed, H. J. Melosh, M. T. Zuber. Controls on the formation of lunar multiring basins. *J. Geophys. Res. Planets* 123, 3035–3050 (2018).
- [33] Fu, R. R., B. P. Weiss, D. L. Schrader, **B. C. Johnson**. Records of Magnetic Fields in the Chondrule Formation Environment. In S. Russell, H. Connolly Jr., & A. Krot (Eds.), *Chondrules: Records of Protoplanetary Disk Processes* (pp. 324–340). Cambridge: Cambridge University Press (2018).
- [32] **Johnson, B. C.**, F. J. Ciesla, C. P. Dullemond, H. J. Melosh. Formation of chondrules by planetesimal collisions. In S. Russell, H. Connolly Jr., & A. Krot (Eds.), *Chondrules: Records of Protoplanetary Disk Processes* (pp. 343–360). Cambridge: Cambridge University Press (2018).
- [31] Sori, M. M., P. B. James, **B. C. Johnson**, J. M. Soderblom, S. C. Solomon, M. A. Wieczorek, M. T. Zuber. Isostatic compensation of the lunar highlands. *J. Geophys. Res. Planets* 123, 645–665 (2018).
- [30] Andrews-Hanna, J. C., J. W. Head, **B. C. Johnson**, J. T. Keane, W. S. Kieffer, P. J. McGovern, G. A. Neumann, M. A. Wieczorek, M. T. Zuber. Ring faults and ring dikes around the Orientale basin on the Moon. *Icarus* 310, 1–20 (2018).
- [29] **Johnson, B. C.**, C. S. Campbell. Drop height and volume control the mobility of long runout landslides on the Earth and Mars. *Geophys. Res. Lett.* 44, 12091–12097 (2017).
- [28] Silber†, E. A., **B. C. Johnson**. Impact crater morphology and the structure of Europa’s ice shell. *J. Geophys. Res. Planets* 122, 2685–2701 (2017).
- [27] **Johnson, B. C.**, R. Y. Sheppard*, A. C. Pascuzzo*, E. A. Fisher*, S. E. Wiggins*. Porosity and salt content determine if subduction can occur in Europa’s ice shell. *J. Geophys. Res. Planets* 122, 2765–2778 (2017).
- [26] Melosh, H. J., J. Kendall, B. Horgan, **B. C. Johnson**, T. J. Bowling, P. G. Lucey, G. J. Taylor. South Pole–Aitken basin ejecta reveal the Moon’s upper mantle. *Geology* 45, 1063–1066 (2017).
- [25] Silber†, E. A., G. R. Osinski, **B. C. Johnson**, R. A. F. Grieve. Effect of impact velocity and acoustic fluidization on the simple-to-complex transition of lunar craters. *J. Geophys. Res. Planets* 122, 800–821 (2017).
- [24] **Johnson, B. C.**, K. J. Walsh, D. A. Minton, A. N. Krot, H. F. Levison. Timing of the formation and migration of giant planets as constrained by CB chondrites. *Science Advances* 2, e1601658 (2016).

- [23] **Johnson, B. C.**, D. M. Blair, G. S. Collins, H. J. Melosh, A. M. Freed, G. J. Taylor, J. W. Head, M. A. Wieczorek, J. C. Andrews-Hanna, F. Nimmo, J. T. Keane, K. Miljković, J. M. Soderblom, M. T. Zuber. Formation of the Orientale lunar multiring basin. *Science* 354, 441–444 (2016).
- [22] Zuber, M. T., D. E. Smith, G. A. Neumann, S. Goossens, J. C. Andrews-Hanna, J. W. Head, W. S. Kiefer, S. W. Asmar, A. S. Konopliv, F. G. Lemoine, I. Matsuyama, H. J. Melosh, P. J. McGovern, F. Nimmo, R. J. Phillips, S. C. Solomon, G. J. Taylor, M. M. Watkins, M. A. Wieczorek, J. G. Williams, J. C. Jansen, **B. C. Johnson**, J. T. Keane, E. Mazarico, K. Miljković, R. S. Park, J. M. Soderblom, D. Yuan. Gravity Field of the Orientale Basin from the Gravity Recovery and Interior Laboratory Mission. *Science* 354, 438–441 (2016).
- [21] **Johnson, B. C.**, T. J. Bowling, A. J. Trowbridge, A. M. Freed. Formation of the Sputnik Planum basin and the thickness of Pluto’s subsurface ocean. *Geophys. Res. Lett.* 43, 10068–10077 (2016).
- [20] Miljković, K., G. S. Collins, M. A. Wieczorek, **B. C. Johnson**, J. M. Soderblom, G. A. Neumann, M. T. Zuber. Subsurface morphology and scaling of lunar impact basins. *J. Geophys. Res. Planets* 121, 1695–1712 (2016).
- [19] **Johnson, B. C.**, C. S. Campbell, H. J. Melosh. Reply to comment by Iverson on “The reduction of friction in long runout landslides as an emergent phenomenon”, *J. Geophys. Res. Earth Surf.* 121, 2243–2246 (2016).
- [18] **Johnson, B. C.**, C. S. Campbell, H. J. Melosh. Reply to comment by Davies and McSaveney on “The reduction of friction in long runout landslides as an emergent phenomenon”, *J. Geophys. Res. Earth Surf.* 121, 1721–1723 (2016).
- [17] **Johnson, B. C.**, C. S. Campbell, H. J. Melosh. The reduction of friction in long runout landslides as an emergent phenomenon. *J. Geophys. Res. Earth Surf.* 121, 881–889 (2016).
- [16] **Johnson, B. C.**, G. S. Collins, D. A. Minton, T. J. Bowling, B. M. Simonson, M. T. Zuber. Spherule layers, crater scaling laws, and the population of ancient terrestrial impactors. *Icarus* 271, 350–359 (2016).
- [15] Parkos, D., A. Alexeenko, M. Kulakhmetov, **B. C. Johnson**, H. J. Melosh. NO_x production and rainout from Chicxulub impact ejecta reentry. *J. Geophys. Res. Planets* 120, 2152–2168 (2015).
- [14] Milbury, C., **B. C. Johnson**, H. J. Melosh, G. S. Collins, D. M. Blair, J. M. Soderblom, F. Nimmo, C. J. Bierson, R. J. Phillips, M. T. Zuber. Preimpact porosity controls the gravity signature of lunar craters. *Geophys. Res. Lett.* 42, 9711–9716 (2015).
- [13] Soderblom, J. M., A. J. Evans, **B. C. Johnson**, H. J. Melosh, K. Miljković, R. J. Phillips, J. C. Andrews-Hanna, C. J. Bierson, J. W. Head III, C. Milbury, G. A. Neumann, F. Nimmo, D. E. Smith, S. C. Solomon, M. M. Sori, M. A. Wieczorek, M. T. Zuber. The fractured Moon: Production and saturation of porosity in the lunar highlands from impact cratering. *Geophys. Res. Lett.* 42, 6939–6944 (2015).

- [12] Steckloff, J. K., **B. C. Johnson**, T. Bowling, H. J. Melosh, D. Minton, C. M. Lisse, K. Battams. Dynamic sublimation pressure and the catastrophic breakup of Comet ISON. *Icarus* 258, 430–437 (2015).
- [11] **Johnson, B. C.**, D. A. Minton, H. J. Melosh, M.T. Zuber. Impact jetting as the origin of chondrules. *Nature* 517, 339–341 (2015).
- [10] Freed, A. M., **B. C. Johnson**, D. M. Blair, H. J. Melosh, G. A. Neumann, R. J. Phillips, S. C. Solomon, M. A. Wieczorek, M. T. Zuber. The formation of lunar mascon basins from impact to contemporary form. *J. Geophys. Res. Planets* 119, JE004657 (2014).
- [9] **Johnson, B. C.**, T. J. Bowling. Where have all the craters gone? The Earth’s bombardment history and the expected terrestrial cratering record. *Geology* 42, 587–590 (2014).
- [8] **Johnson, B. C.**, T. J. Bowling, H. J. Melosh. Jetting during vertical impacts of spherical projectiles. *Icarus* 238, 13–22 (2014).
- [7] **Johnson, B. C.**, H. J. Melosh. Formation of melt droplets, melt fragments, and accretionary impact lapilli during a hypervelocity impact. *Icarus* 228, 347–363 (2014).
- [6] Bowling, T. J., **B. C. Johnson**, H. J. Melosh, B. A. Ivanov, D. P. O’Brien, R. Gaskell, S. Marchi. Antipodal topography created by the Rheasilvia impact on asteroid 4 Vesta. *J. Geophys. Res. Planets* 118, 1821–1834 (2013).
- [5] Melosh, H. J., A. M. Freed, **B. C. Johnson**, D. M. Blair, J. C. Andrews-Hanna, G. A. Neumann, R. J. Phillips, D. E. Smith, S. C. Solomon, M. A. Wieczorek, M. T. Zuber. The Origin of Lunar Mascon Basins. *Science* 340, 1552–1555 (2013).
- [4] Yue, Z., **B. C. Johnson**, D. A. Minton, H. J. Melosh, K. Di, W. Hu, Y. Liu. Projectile remnants in central peaks of lunar impact craters. *Nature Geosciences* 6, 435–437 (2013).
- [3] **Johnson, B. C.**, C. M. Lisse, C. H. Chen, H. J. Melosh, M. C. Wyatt, P. Thebault, W. G. Henning, E. Gaidos, L. T. Elkins-Tanton, J. C. Bridges, A. Morlok. A self-consistent model of the circumstellar debris created by a giant hypervelocity impact in the HD172555 system. *The Astrophysical Journal* 761, 45–58 (2012).
- [2] **Johnson, B. C.**, H. J. Melosh. Impact spherules as a record of an ancient heavy bombardment of Earth. *Nature* 485, 75–77 (2012).
- [1] **Johnson, B. C.**, H. J. Melosh. Formation of spherules in impact produced vapor plumes. *Icarus* 217, 416–430 (2012).

Talks

Invited

- South Pole-Aitken Basin Overview Panelists for Endurance Science Workshop (2023).
- Impact basins as probes of planetary interiors. University of Kentucky, Department of Earth and Environmental Sciences (2023).
- Impact basins as probes of planetary interiors. Pennsylvania State University, Department of Geosciences (2022).
- Landslide Morphology and Mobility on Ceres. DAWN science team meeting (2021).
- Impact fragmentation and the efficient fracturing of terrestrial crusts. Michigan

- Technological University, Earth Planetary and Space Sciences Institute (2020).
- Impact fragmentation and other geophysical mayhem. Purdue University, Department of Physics and Astronomy (2020).
- Multiring basins as probes of planetary interiors. University of Michigan, Department of Earth and Environmental Sciences (2020).
- Impact basins as probes of planetary interiors. UC Santa Cruz, Department of Earth and Planetary Sciences (2020)
- Formation of multiring basins. Purdue University, Department of Earth Atmospheric and Planetary Sciences (2019).
- Basin formation on the Moon and Pluto. Science colloquium for American Museum of Natural History planetarium show (2018).
- Formation of the Sputnik Planitia basins and the thickness of Pluto's subsurface ocean. Keynote Rhode Island Space Grant Symposium (2018).
- Planetesimal Collisions. Workshop on Accretion Processes in Planet-Forming Regions, JPL (2018).
- Formation of Chondrules by Planetesimal Collision. Chondrules and Protoplanetary Disk, Natural History Museum, London (2017).
- The Formation of Impact Ejecta Layers and Chondrules. Brown University, Department of Earth, Environmental and Planetary Sciences (2015).
- Formation and Evolution of the Orientale Basin. Microsymposium 56, The Crust of the Moon: Insights Into Early Planetary Processes (2015).
- The Formation of the Orientale Lunar Multi-Ring Basin. Brown University, SEERVI SEED (2014).
- A new model for distal impact ejecta and, perhaps, chondrules. California Institute of Technology, Division of Geological and Planetary Sciences (2014).
- The formation of distal impact ejecta. University of Chicago, Department of Geophysical Sciences (2013).

Contributed talks with Johnson or student advisee as first author

- Cashion*, M. D., **B. C. Johnson**, M. M. Sori, H. Gibson, H. J. Melosh, E. P. Turtle. Double ridges on Europa produce by ice wedging. 54th *Lunar and Planetary Science Conference*, Abstract #2007 (2023).
- Denton*, C. A., G. J. Gosselin^G, A. M. Freed, **B. C. Johnson**. The formation and evolution Sputnik basin, Pluto, prior to nitrogen ice fill. 54th *Lunar and Planetary Science Conference*, Abstract #2320 (2023).
- Lee* S., **B. C. Johnson**. Spatial variation of dwell time induced by a hypervelocity impact. 54th *Lunar and Planetary Science Conference*, Abstract #2320 (2023).
- Cashion*, M. D., **B. C. Johnson**, R. Deienno, K. Kretke, K. J. Walsh, A. N. Krot. Chondrules as byproducts of giant planet formation. *Meteoritical Society meeting* (2022).

- Nichols-Fleming*, F., A. Evans, **B. C. Johnson**, M. M. Sori. Porosity Evolution of Psyche and Other M-type Asteroids. *53rd Lunar and Planetary Science Conference*, Abstract #1071 (2022).
- Carlson*, M. C., H. J. Melosh, **B. C. Johnson**. Effects of Atmosphere on Ejecta Emplacement on Earth and Mars. *52nd Lunar and Planetary Science Conference*, Abstract #1170 (2021).
- Denton*, C. A., **B. C. Johnson**, S. Wakita[†], A. M. Freed, H. J. Melosh, A. S. Stern. Antipodal Terrains Produced by Sputnik-Planitia Forming Impact Imply Pluto Has a Thick Ocean and Hydrated Core. *52nd Lunar and Planetary Science Conference*, Abstract #1078 (2021).
- Bjonnes*, E. E., **B. C. Johnson**, A. E. Evans. The Effects of Venus' Thermal Conditions on Multiring Basin Formation. *52nd Lunar and Planetary Science Conference*, Abstract #1513 (2021).
- Nichols-Fleming*, F., A. Evans, **B. C. Johnson**. Short-Lived Lunar Dynamos Driven by the Accretion of Cold Impactor Material. *52nd Lunar and Planetary Science Conference*, Abstract #2177 (2021).
- Cashion*, M. D., **B. C. Johnson**, S. Wakita^P, T. Davison, A. N. Krot, K. Kretke, K. Walsh. Producing Chondrules in the Outer Solar System: The Effect of Ice on Impact Jetting. *52nd Lunar and Planetary Science Conference*, Abstract #1737 (2021).
- Gosselin*, G. J., A. M. Freed, **B. C. Johnson**. Where Have All the Rings Gone? Exploring the Reputed Multiring Nature of Mercury's Caloris Basin. *52nd Lunar and Planetary Science Conference*, Abstract #1529 (2021).
- Wiggins*, S.E., **B. C. Johnson**. Solid Fragments Ejected by Lunar Hypervelocity Impacts. *52nd Lunar and Planetary Science Conference*, Abstract #2307 (2021).
- Nichols-Fleming*, F., A. Evans, **B. C. Johnson**. Short-Lived Lunar Dynamos Driven by the Accretion of Cold Impactor Material. *51st Lunar and Planetary Science Conference*, Abstract #2187 (2020). (Canceled COVID-19)
- Denton*, C. A., **B. C. Johnson**, A. M. Freed, H. J. Melosh. Seismology on Pluto?! Antipodal Terrains Produced by Sputnik Planitia Forming Impact. *51st Lunar and Planetary Science Conference*, Abstract #1220 (2020). (Canceled COVID-19)
- Bjonnes*, E. E., **B. C. Johnson**, A. E. Evans. Determining Venus' Thermal Condition Through Multiring Basin Formation. *51st Lunar and Planetary Science Conference*, Abstract #2511 (2020). (Canceled COVID-19)
- Johnson, B. C.**, M. M. Sori, A. J. Evans. Ferrovolcanism, Pallasites, and Psyche. *50th Lunar and Planetary Science Conference*, Abstract #1625 (2019).
- Denton*, C. A., **B. C. Johnson**. Formation of the Sputnik Planitia basin: Moving towards refined constraints on ocean thickness. *Large Meteorite Impacts VI*, Abstract #5104 (2019).
- Bjonnes*, E. E., **B. C. Johnson**, J. C. Andrews-Hanna. Exploring the Peak-Ring to Multiring Basin Transition on the Moon. *50th Lunar and Planetary Science Conference*, Abstract #2026 (2019).

- Wiggins*, S.E., **B. C. Johnson**, G. S. Collins, T. J. Bowling, H. J. Melosh, E. A. Silber†. Impact-Generated Porosity at Depth Within the Lunar Crust. *48th Lunar and Planetary Science Conference*, Abstract #2157 (2018).
- Bjonnes*, E. E., **B. C. Johnson**. Modeling of Mead Impact Basin and implications for planetary heat flow. *AGU fall meeting* (2018)
- Bjonnes*, E. E., **B. C. Johnson**. Formation of Impact Craters on Ganymede and Callisto as a Constraint on Ice Shell Structure. *49th Lunar and Planetary Science Conference*, Abstract #1548 (2018).
- Johnson, B. C.**, C. S. Campbell, M. M. Sori. Fall Height and Volume Control Landslide Mobility Throughout the Solar System. *49th Lunar and Planetary Science Conference*, Abstract #1555 (2018).
- Wiggins*, S.E., **B. C. Johnson**, E. A. Silber†, T. J. Bowling, H. J. Melosh. Impact Fragmentation and Development of the Lunar Megaregolith. *49th Lunar and Planetary Science Conference*, Abstract #1295 (2017).
- Johnson, B. C.**, J. C. Andrews-Hanna, G. S. Collins, A. M. Freed, H. J. Melosh, M. T. Zuber. Multiring Basin Formation: Controls on Ring Location and Spacing. *48th Lunar and Planetary Science Conference*, Abstract #1536 (2017).
- Johnson, B. C.**, T. J. Bowling, A. J. Trowbridge, A. M. Freed. Formation of the Sputnik Planum basin and the thickness of Pluto's subsurface ocean. *AGU fall meeting*, P44A-06 (2016).
- Johnson, B. C.**, K. J. Walsh, D. A. Minton. Late Formation and Migration of Giant Planets as Constrained by Formation of CB Chondrites. *47th Lunar and Planetary Science Conference*, Abstract #1136 (2016).
- Johnson, B. C.**, T. J. Bowling, H. J. Melosh^M. Steps Toward Implementing the Grady-Kipp Fragmentation Model in an Eulerian Hydrocode. *47th Lunar and Planetary Science Conference*, Abstract #1492 (2016).
- Johnson, B. C.**, J. C. Andrews-Hanna, G. S. Collins, H. J. Melosh, J. W. Head, D. M. Blair, A. M. Freed, K. Miljković, J. M. Soderblom, M. T. Zuber. The Formation of Lunar Multi-Ring Basins. *46th Lunar and Planetary Science Conference*, Abstract #1362 (2015).
- Johnson, B. C.**, D. A. Minton, H. J. Melosh. The Impact Origin of Chondrules. *45th Lunar and Planetary Science Conference*, Abstract #1471 (2014).
- Johnson, B. C.**, and H. J. Melosh. Jetting During the Vertical Impact of a Spherical Projectile. *Large Meteorite Impacts and Planetary Evolution V*, Abstract #3014 (2013).
- Johnson, B. C.**, D. M. Blair, A. M. Freed, H. J. Melosh, J. C. Andrews-Hanna, G. A. Neumann, R. J. Phillips, D. E. Smith, S. C. Solomon, M. A. Wicczorek, M. T. Zuber. The Origin of Mascon Basins, Part I. Impact and Crater Collapse. *44th Lunar and Planetary Science Conference*, Abstract #1456 (2013).
- Johnson, B. C.**, T. J. Bowling, H. J. Melosh. Formation of Valhalla-Like Multi-Ring Basins. *44th Lunar and Planetary Science Conference*, Abstract #1719 (2013).

- Johnson, B. C.**, H. J. Melosh. Distal Impact Ejecta: Melt Droplets, Impact Lapilli, and Tektites. *43rd Lunar and Planetary Science Conference*, Abstract #1456 (2012).
- Johnson, B. C.**, H. J. Melosh. New Estimates for the Number of Large Impacts Throughout Earth's History. *Early Solar System Impact Bombardment II*, Abstract #4027 (2012).
- Johnson, B. C.**, H. J. Melosh. New Estimates of the Sizes and Impact Velocities of Archean Impactors. *Geological Society of America Annual Meeting* (2011).
- Johnson B. C.**, H. J. Melosh. Homogeneous Nucleation of Silica Dust Following a Hypervelocity Impact. *42nd Lunar and Planetary Science Conference*, Abstract #1069 (2011).

Grants

Current

Title: Effects of Methane Clathrate on the Depth of Titan's Craters
 Source: NASA Cassini Data Analysis Program (CDAP)
 PI: Jason Soderblom
 Role: Co-I
 Duration: 2024–2026

Title: Collisional vaporization and the origin of gas in debris disks
 Source: NASA Exoplanets Research Program
 PI: Yasuhiro Hasegawa
 Role: Co-I
 Duration: 2024–2026

Title: Are terrestrial planets forming around HD 166191?
 Source: Joint Atacama Large Millimeter Array (ALMA) Observatory Cycle 10
 PI: Kadin Worthin
 Role: Co-I
 Duration: 2023–2024

Title: Lunar Structure, Composition, and Processes for Exploration (LunaSCOPE)
 Source: NASA Solar System Exploration Research Virtual Institute (SSERVI)
 PI: Alexander Evans
 Role: Co-I
 Duration: 2023–2028

Title: Center for Lunar Origin and Evolution (CLOE)
 Source: NASA Solar System Exploration Research Virtual Institute (SSERVI)
 PI: William Bottke
 Role: Co-I
 Duration: 2023–2028

Title: Formation and evolution of impact-generated topography on the Hadean Earth
Source: NASA Exobiology program
PI: Simone Marchi
Role: Co-I
Duration: 2023–2024

Title: Effect of methane clathrate on crater size and implications for the age of Titan's surface
Source: NASA Cassini Data Analysis Program (CDAP)
PI: Jason Soderblom
Role: Co-I
Duration: 2023 (NCE to 2024)

Title: Unraveling the formation and evolution of Mercury's Caloris Basin: Gaining insight into the architecture of a young terrestrial planet
Source: Future Investigators in NASA Earth and Space Science and Technology (FINESST) program
Role: Co-PI with Andy Freed
Duration: 2022–2024

Title: Prebiotic chemistry in transient impact-generated hydrothermal systems
Source: NASA Habitable Worlds (HW) program
PI: Simone Marchi
Role: Co-I
Duration: 2021–2024

Title: Formation of icy multiring basins: exploring sensitivity to ice shell thickness and thermal structure on Europa, Ganymede, and Callisto
Source: NASA Solar Systems Working (SSW) program
Role: PI
Duration: 2021–2024

Title: The evolution of planetary crusts through lunar gravity and topography
Source: NASA Lunar Data Analysis Program (LDAP)
PI: Michael Sori
Role: Co-I
Duration: 2021–2024

Title: Dynamics of the early solar system and implications for the possible impact origin of chondrules
Source: NASA Emerging Worlds (EW) program
Role: PI
Duration: 2020–2023 (NCE to 2025)

Past

- Title: The Impact of Titan’s Impacts
 Source: NASA Cassini Data Analysis Program (CDAP)
 PI: Jason Soderblom
 Role: Co-I
 Duration: 2020–2023 (NCE to 2024)
- Title: Origins of the Lunar Asymmetry
 Source: NASA Solar System Workings (SSW) program
 PI: Alex Evans
 Role: Co-I
 Duration: 2019–2022 (NCE to 2024)
- Title: Structure of Lunar Basins and Moon’s Lithosphere as Constrained by GRAIL gravity and LOLA topography
 Source: NASA Lunar Data Analysis Program (LDAP)
 Role: PI
 Duration: 2017–2020 (transfer and NCE to 2024)
- Title: Are terrestrial planets forming around HD 166191?
 Source: Joint Atacama Large Millimeter Array (ALMA) Observatory Cycle 9
 Observation did not occur due to ALMA hacking incident
 PI: Kadin Worthin
 Role: Co-I
 Duration: 2022–2023
- Title: Sputnik Planitia as a probe for Pluto’s interior structure and global tectonic evolution
 Source: Future Investigators in NASA Earth and Space Science and Technology (FINESST) program
 Role: PI
 Duration: 2020–2022
- Title: Constraining Ceres' subsurface structure at geological landmarks using the Dawn gravity and shape data
 PI: Ryan Park and Anton Ermakov (Science PI)
 Role: Co-I
 Source: NASA Discovery Data Analysis Program (DDAP)
 Duration: 2019–2020 extended to 2021
- Title: True Polar Wander of Terrestrial Planets and its Implications for the Long Term Stability of Polar Volatiles
 PI: Isamu Matsuyama and James Keane (Science PI)
 Role: Co-I
 Source: NASA Solar System Workings (SSW)
 Duration: 2017–2020 extended to 2022

Title: Tracing Giant Collisions in the Extreme Debris Disks HD 23514 and HD 145263
 PI: Christine Chen
 Role: Co-I
 Source: NASA Infrared Telescope Facility
 Period: February 2019–July 2019

Title: Tracing Giant Collisions in the Extreme Debris Disks BD+20 307 and HD 15407
 PI: Christine Chen
 Role: Co-I
 Source: NASA Infrared Telescope Facility
 Period: August 2019–January 2020

Service

Purdue University

2023–present Graduate Committee (Chair)
 2021–2022 Multi-departmental search committee in Origins of Life
 2020–2023 Graduate Committee (lead of New Grad. Seminar)
 2019–2023 Strategic Planning Committee
 2019–2021 Undergraduate Committee

Brown University

2018–2019 Planetary Climate Task Force
 2018 DEEPS Tectonophysics Search Committee
 2018–2019 Computer Committee
 2017–2018 Colloquium Organizer Spring 2018
 2017 DEEPS Tectonophysics Search Committee
 2016–2017 BEARCORE (Ethics)
 2016–2017 DEEPS Curriculum Committee
 2015–2016 DEEPS Geophysical Modeling Search Committee

Graduate student advising (not including primary advisees)

Present:

Mariana Blanco-Rojas
 Ian Pamerleau
 Juliana Pereira (Civil Eng.)
 Austin Blevins
 Gregory Gosselin

Past:

Alexander Trowbridge
 Matthew Jones (Brown)
 Christopher Kremer (Brown)
 Elizabeth Fisher (Brown)

Preliminary examination committee member (not otherwise advised)
 Nir Badt (2019, Brown)
 Alyssa Pascuzzo (2018, Brown) – Chair

Rachel Sheppard (2017, Brown)
 Michael Bramble (2017, Brown)

Profession

2023–present Member of the National Academy of Sciences Committee on Astrobiology and Planetary Science (CAPS)

CAPS provides an independent, authoritative forum for identifying and discussing issues in astrobiology and planetary science with the research community, the federal government, and the interested public. The committee supports scientific progress in astrobiology and planetary science by providing advice to the federal government on the implementation of decadal survey recommendations.

2019–present Associate editor for *Icarus*

NASA review panelist (~yearly)

ad hoc reviewer for NASA and other agencies (several/year)

Reviewer for: *Science*, *Nature*, *Science Advances*, *Nature Astronomy*, *Nature Communicaitons*, *Earth Planet. Sci. Lett.*, *Geophys. Res. Lett.*, *J. Geophys. Res. Planets*, *Icarus*, *Meteoritics & Planetary Science*, *Astrophysical Journal Letters*, *The Astrophysical Journal*, *Astrobiology*

I review ~10 manuscripts per year (for journals other than *Icarus*)

Outstanding reviewer recognition from *Earth and Planetary Science Letters*

Outstanding reviewer recognition from *Icarus*

Academic honors

Ronald Greeley Early Career Award in Planetary Science (AGU, 2018)

Lark-Horovitz Award, for outstanding research in physics (Purdue University, 2013)

Nininger Meteorite Award (Center for Meteorite Studies Arizona State University, 2012)

NS Mackie Endowed Scholarship (Michigan Technological University, 2007)

Class of 1965 Endowed Scholarship (Michigan Technological University, 2006)

Board of Control Scholarship (Michigan Technological University, 2005–2009)

Teaching and Advising

Courses

2023 (Fall) EAPS 591: Impacts

2022 (Fall) EAPS 556: Planetary Surface Processes

2022 (Fall) EAPS 602: New Graduate Student Seminar

2022 (Spring) EAPS 591: Ocean Worlds

2021 (Fall) EAPS 591: Impacts

2021 (Fall)	EAPS 602: New Graduate Student Seminar
2021 (Spring)	EAPS 591: Planetary Origins
2020 (Fall)	EAPS 602: New Graduate Student Seminar
2020 (Fall)	EAPS 556: Planetary Geology
2020 (Spring)	EAPS 591: Ocean Worlds
2018 (Fall)	GEOL 1390: Planetary Surface Processes
2018 (Spring)	GEOL 2880: Planetary Cratering
2017 (Spring)	GEOL 2920B: Ocean Worlds
2016 (Fall)	GEOL 2910P: Origin and evolution of planetary systems
2016 (Spring)	GEOL 2880: Planetary Cratering

Current graduate students

Sowon Lee (Advisor for Ph.D. since 5/2022)

Melissa Cashion (Advisor for Ph.D. since 9/2020)

Michael Carlson (Advisor for Ph.D. since 9/2020)

Past PhD students

Dr. Fiona Nichols-Fleming – Postdoc with Emily Martin at Smithsonian National Air and Space Museum

Dr. Adeene Denton – Postdoc with Erik Asphaug at the University of Arizona

Dr. Sean Wiggins – Postdoc at Lawrence Livermore National Laboratory

Dr. Evan Bjonnes – Postdoc Lawrence Livermore National Laboratory

Past Master's students

Hannah Gibson M.S.

Current Postdocs

Dr. Andrea Rajsic

Current Research Scientists

Dr. Shigeru Wakita

Past Postdocs

Dr. Shigeru Wakita – Research scientist at Purdue

Dr. Elizabeth Silber – Senior Geoscientist, Sandia National Laboratories

Current Undergrads

Josuan Vega

Past Undergrads

Eva Veeningen

John Herring – Iowa State Ph.D. program

Brandi Daddario – U. C. Davis Ph.D. program advised by Sarah Stewart

Taylor Bourikas

Jon Brunton – Imperial College London M.S. program

Evan Kelch – Morehead University M.S. program

Pat Pesa

Katherine Pisani – Guidance Navigation Control Analyst APL

Diversity Activities

Coauthor on “An URGE Pod Remix: Benefits, Challenges, and Next Steps from a Multi-Institution Pod” abstract # 857749 AGU Fall meeting 2021.

Coauthor on “MEGA Pod: Benefits and Lessons Learned From a Multi-Institution URGE Pod” abstract # 369951 GSA Connects 2021.

Bystander Intervention to stop anti-Asian/American and xenophobic harassment put on by Asian Americans Advancing Justice and hollaback! (May 14, 2021)

Spring 2021 Member of Midwest Equity in Geosciences Alliance (MEGA) URGE pod. URGE’s (Unlearning Racism in GEoscience) primary objectives are to (1) deepen the community’s knowledge of the effects of racism on the participation and retention of Black, Brown, and Indigenous people in Geoscience, (2) draw on existing literature, expert opinions, and personal experiences to develop anti-racist policies and strategies, and (3) share, discuss, and modify anti-racist policies and strategies within a dynamic community network and on a national stage.

Fall 2020 In the strategic planning committee I have been active in incorporating themes of diversity equity and inclusion as one of the main pieces of the strategic plan.

Departmental anti-racism training Nov. 17, 2020.

Pursuing Racial Justice Together (2020–2021)

Attended 18 lectures often followed by discussion amongst a small group of faculty, students, and staff. The lectures and workshops in Pursuing Racial Justice Together, distinguished learning series presented by the Division of Diversity and Inclusion explored themes related to race, racism, and systemic inequities.

UNH PowerPlay Bias Awareness & Intervention, an interactive seminar on bias intervention featuring an applied theatre troupe, Oct. 22, 2020

Safe Zone training, Purdue LGBTQ Center 2019

Maximizing Student Potential Conference, Division of Diversity and Inclusion 2019

Brown University

2018–2019 Member of oSTEM (Out in Science, Technology, Engineering, and Mathematics)

2018–2019 Planetary Climate Task Force

In the Task Force we read the National Academies report on Sexual Harassment of Women and LGBT+ Inclusivity in Physics and Astronomy Best Practices Guide and identified action items to help improve the departmental climate. Some tangible outcomes of the task force are the inclusion of gender neutral bathrooms in the building and the creation of a Code of Conduct.

2017 Safe Zone training

2016–2019 Participant in GWISE (Graduate Women in Science and Engineering) Book club

Other Engagement Activities

I comment on other researchers work in the news several times a year. I also advise journalists on whether stories are worth covering a few times a year.

I have been on local and regional news several times discussing fireball and airburst events.

I correspond with members of the public about suspected craters and meteorites several times a year.

- 2023 Answered technical questions for Smithsonian Channel regarding complex craters on Earth.
- 2023 [Chicxulub tsunami data set](#) for [NOAA Science On a Sphere which](#) projects global data sets on a 6ft diameter sphere at over 175 museums across the world. A [tweet](#) of this data set was seen by over 2 million people!
- 2022 Answered technical questions from BBC studios regarding the Chicxulub impact.
- 2022 Discussed NASA’s Double Asteroid Redirection Test (DART) with Terra Haute Tribune-Star
- 2022 Associated Press interview regarding Chicxulub Tsunami work
- 2022 On local and regional (live) news to discuss Artemis 1
- 2022 Associated Press interview regarding Artemis
- 2022 Guest on *Out Of The Blank* Podcast
- 2022 Public lecture for Cleveland Astronomical Society
- 2021–2024 Purdue Engineering Projects in Community Service (EPICS) project partner. Working on redevelopment of ImpactEarth! Website <https://www.purdue.edu/impactearth/> (a website used in outreach to calculate the effects and hazards of impacts). EPICS is a service-learning design program in which teams of students partner with local and global community organizations to address human, community, and environmental needs

Served as GWISE Poster session judge.

Served as a science fair judge several times.

Professional Memberships

America Astronomical Society Division for Planetary Sciences
 American Geophysical Union
 The Meteoritical Society
 Geological Society of America

Selected Press Coverage and highlights

2022 – Regarding Chicxulub tsunami work published in *AGU Advances*

Editor [Highlight](#)

[Nature](#) Research Highlight

Asteroid that wiped out the dinosaurs also triggered a global tsunami [CNN](#)

2022 – Regarding impact porosity work published in *Nature Communications*

Selected as an Editor’s Highlight

Why pummeled planets may be promising abodes for alien life [Space.com](#)

Breaking in a new planet [Purdue](#) (picked up by others)

2022 – Regarding lunar compositional asymmetry work published in *Science Advances*

Scientists come up with fresh take on moon mystery [CNN](#)

Differences between the Moon's near and far sides linked to colossal ancient impact [Brown](#)

2022 – Regarding Hiawatha crater age work published in *Science Advances*

Controversial impact crater under Greenland's ice is surprisingly ancient. [Science](#)

Incredibly old crater discovery debunks a hot theory about Earth's last ice age. [Inverse](#)

2022 – Regarding Psyche porosity evolution work published in *JGR Planets*

The 'Iron Giant' Asteroid Worth More Than Our Global Economy May Have An Explosive Secret Say Scientists. [Forbes](#)

'Bizarre' Psyche asteroid may be less heavy metal more hard rock. [Futurity](#)

The iron-y: \$10 quintillion asteroid might have less iron than believed. [The Jerusalem Post](#)

2021 – Regarding antipodal magnetic anomaly work published in *Nature Communications*

Selected as an Editor's Highlight

Asteroid material deposited during large impacts record the moon's ancient magnetic field

[Phys.org](#)

2021 – Regarding Hiawatha crater work published in *EPSL*

Research sheds light on origins, age of massive impact crater [Phys.org](#) (picked up by others)

2021 – Regarding Venus multiring basin work published in *Nature Astronomy*

Thick lithosphere casts doubt on plate tectonics in Venus's geologically recent past. [Brown](#)

(picked up by others)

2020 – Regarding Pluto antipodal focusing work published in *GRL*

Collision on One Side of Pluto Ripped Up Terrain on the Other. [Scientific American](#)

If Pluto has a subsurface ocean, it may be old and deep. [Science News](#)

Ancient Impact's Seismic Waves Reveal Pluto's Ocean, Core. [Eos](#)

2019 – Regarding Impact fragmentation work published in *JGR Planets*

Awarded as a top 10 most downloaded paper 1 year from publication in *JGR Planets*.

The Moon's Surface Is Totally Cracked. [Live Science](#) and [Space.com](#)

The Moon's crust is really cracked. [GeoSpace](#)

2019 – Regarding Lunar Multiring basin work published in *JGR Planets*

How the Moon Got Its Concentric Rings. [EOS research spotlight](#)

2019 – Regarding Ferrovulcanism work published in *Nature Astronomy*

Heavy-metal space volcanoes may have forged gem-studded meteorites. [National Geographic](#)

NASA to Seek Iron-Spewing Volcanoes at Psyche. [Scientific American](#)

Metal asteroids may have once had iron-spewing volcanoes. [ScienceNews](#)

2019 – Regarding Chicxulub tsunami work presented at *AGU meeting*

Huge Global Tsunami Followed Dinosaur-Killing Asteroid Impact. [EOS](#)

Dinosaur-Killing Asteroid Triggered A Mile-High Tsunami Across The Globe. [Forbes](#)

Dinosaur-Killing Asteroid Triggered Mile-High Tsunami That Spread Through Earth's Oceans.

[Yahoo! News](#) (and others)

2017 – Regarding Europa subduction work published in *JGR Planets*

Journal highlight with [commentary](#)

New Evidence Points to Icy Plate Tectonics on Europa. [Gizmodo](#)

Boost for Odds of Life? Jupiter Moon Europa May Have Plate Tectonics. [Space.com](#)

2016 – Regarding CB chondrite work published in *Science Advances*

Study Sheds Light On Jupiter's Formation And Migration. [Yahoo! News](#) (and others)
Research offers clues about the timing of Jupiter's formation. [Brown](#) (picked up by others)

2016 – Regarding Multiring basin work published in *Science*

Cover image of *Science* was selected as top 10 science images of 2016. [Science](#)
Mystery of How the Moon Got Its Bull's-Eye May Be Solved. [Space.com](#)
Research helps explain formation of ringed crater on the Moon. [Brown](#) (picked up by others)

2016 – Regarding Sputnik Planum (Pluto) work published in *Geophysical Research Letters*

Selected as in part as #40 of top 100 science discoveries of 2016 by [Discovery Magazine](#)
Does Pluto have a hidden ocean? Its 'heart' holds a clue. [LA Times](#)
Pluto's Liquid Water Ocean Might Be Insanely Deep. [Gizmodo](#)

2016 – Regarding landslide work published in *JGR Earth Surface*

Journal highlight with [commentary](#) also highlighted in [Nature](#)
Why do some landslides travel so much farther than others? [Science](#)
Vibrations make large landslides flow like fluid. [Brown](#) (picked up by others)

2015 – Regarding chondrule work published in *Nature*

Asteroids May Not Be Planet Building Blocks After All. [Space.com](#)
A twist on planetary origins. [MIT news](#) (picked up others)
Meteorite material born in molten spray as embryo planets collided. [Phys.org](#)

2014 – Regarding crater survival work published in *Geology*

Where have all the craters gone? [The Economist](#) (in print and online)
Where have all the craters gone? [Phys.org](#)

2013 – Regarding mascon work published in *Science*

Montesi, L. Solving the Mascon Mystery. [Science Perspective](#)
Revealed: The Awesome Explanation for the Moon's Extra Gravity. [Time](#)
The moon's mysteriously uneven gravity is explained at last. [LA Times](#)
Mystery of Moon's Lumpy Gravity Explained. [Space.com](#)

2013 – Regarding projectile remnant work published in *Nature Geoscience*

Asphaug, E. Go and catch a falling star. [Nature Geoscience News & Views](#)
Surprise! Moon Craters May Hold Ancient Asteroid Pieces. [Space.com](#)
Alien Debris Found in Lunar Craters. [Discovery News](#)

2012 – Regarding spherule work published in *Nature*

Kyte, F. T. Focus on ancient bombardment. [Nature News & Views](#)
Goldin, T. Earth's ancient catastrophes. [Nature Geoscience News & Views](#)
Asteroids Battered Young Earth Longer Than Thought. [Huffington Post](#) and [Space.com](#)