EMPLOYMENT HISTORY

2017-present	U Arizona, Professor, Lunar and Planetary Laboratory, Dept. of
	Planetary Sciences
2012-2017	ASU, Professor, Ronald Greeley Chair of Planetary Sciences
2006-2012	UCSC, Professor, Dept. of Earth & Planetary Sciences
2002-2006	UCSC, Assoc. Professor, Dept. of Earth Sciences
2000-2002	UCSC, Asst. Professor, Dept. of Earth Sciences
1998-2000	UCSC, Assoc. Research Geophysicist, Dept. of Earth Sciences
1996-1998	SETI Institute, Research Scientist
1993-1995	NASA Ames Research Center, NRC Postdoctoral Fellow
1988-1993	U Arizona, Dept. of Planetary Sciences, Graduate Researcher
1985-1988	St. Gregory High School, Tucson, Science & English Depts.
1985	Breck School, Minneapolis, Science & English Depts.

EDUCATION

1988-1993	PhD, U. Arizona: Planetary Sciences, Minor in Geophysics
1981-1984	BA, Rice University: Mathematics & English

Fellowships and Scholarships

1989-1993	NASA Graduate Student Researcher Program Fellowship
1988-1989	U Arizona Faculty of Sciences Graduate Research Fellowship
1980-1984	Rice University Class of 1930 full scholarship
1981-1984	Rice University Max Roy Scholarship for Science and Math

ACADEMIC HONORS

Asteroid (7939) Asphaug, discovered by Eleanor Helin Harold C. Urey Prize, Division of Planetary Sciences (DPS) of the AAS, 1998

TEACHING

U Arizona

S2024 PTYS 423/523 Moons

S2023 PTYS 595B Planet-Forming Collisions

F2022 PTYS 423/523 Moons

S2021 PTYS 595B Planetary Collisions

S2020 PTYS 595B Lunar Water

F2019 PTYS 595B Satellites

S2019 PTYS 595B Planetary Collisions

2019-present ASTEROIDS summer education program (Asteroid Science, Technology & Exploration Research Organized by Inclusive eDucation Systems), NASA MIRO, science program lead

ASU

F2016 AST111, Intro Solar System Astronomy (850 students)

S2016 SES494/598/MAE598, Interplanetary Cubesat Design II (co-taught)

F2015 SES494/598/MAE598, Interplanetary Cubesat Design I (co-taught)

F2015 SES410, Exploration Systems Design (research capstone, co-taught)

F2014 GLG494/598, Terrestrial Planet Formation

S2014 GLG494/598, Planetary Collisions

UCSC (not chronological)

EPS111 Mathematics for the Earth Sciences EPS160 Formation of the Solar System

EPS160 Planetary Science EPS163/263 Planetary Surfaces EPS290 Planetary Collisions

EPS290 Geophysics of Comets & Asteroids EPS290 High Strain Rate Planetary Mechanics

NASA Ames Research Center

S4P: Small Spacecraft Summer Study Program (8-wk research internship), developed Didymos rendezvous mission with 12 international graduate students

ADVISING

Assistant Research Faculty Supervised

Misha Kreslavsky (UCSC, 2006-2012)

Donald Korycansky (UCSC, 2002-2006) Craig Agnor (UCSC, 2005)

Postgraduate Scholars Supervised

Arizona:

Adeene Denton (2022-)

Laura Parro (2022-2023), visiting scholar

Stephen Schwartz (2017-2022)

Alexandre Emsenhuber (2018-2021)

ASU:

Alan Jackson (2013-2016)

Desiree Cotto-Figueroa (2013-2015)

Andreas Reufer (2013-2014)

UCSC:

Shangfei Liu (2013-2015)

Martin Jutzi (2009-2011)

Lindsey Chambers (2008-2011)

Donald Korvcansky (2000-2002)

Craig Agnor (2002-2004)

Graduate Students Supervised

Current at U Arizona:

Namya Baijal, PhD advisor

Robert Melikvan, PhD advisor

Nathan Hadland, PhD thesis committee

Himangshu Kalita, PhD thesis committee

Yuhui (Harry) Tang, PhD thesis committee

Jackson Qiu, PhD thesis committee

Completed (reverse chronological):

Graduated at U Arizona:

Massimo Biella, MS thesis committee
Allison McGraw, PhD thesis committee
Benjamin Sharkey, PhD thesis committee
Leonard Vance, PhD thesis committee
Tristan Schuler, MS thesis committee
Ravi Teja Nallapu, PhD thesis committee
Saverio Cambioni, PhD thesis advisor
Jose Fernandez, MS thesis committee
Aman Chandra, MS thesis committee
Jorge Martinez Dominquez, MS thesis committee

Graduated at ASU:

Travis Gabriel, PhD thesis advisor
Jessica Noviello, PhD thesis committee
Michael Veto, PhD thesis committee
Jacob Adler, PhD thesis committee
Andrew Thoesen, Phd thesis committee
Wendy Caldwell, MS thesis committee
Andrew Ryan, PhD thesis committee
Viranga Perera, PhD thesis advisor
Heather Meyer, PhD thesis committee
Laksh Raura, MS thesis committee
Luke Probst, PhD thesis committee
Julie Stolpar, PhD thesis committee

Graduated at UCSC:

Michael Nayak (Earth and Planetary Sciences), PhD thesis committee Naor Movshovitz (Earth and Planetary Sciences), PhD thesis advisor James Guillochon (Astronomy and Astrophysics), PhD thesis committee Travis Orloff (Earth and Planetary Sciences), PhD thesis advisor Reid Parsons (Earth and Planetary Sciences), PhD thesis committee Catherine Plesko (Earth and Planetary Sciences), PhD thesis advisor Lindsey Chambers (Earth and Planetary Sciences), PhD thesis advisor Lissa Ong (Earth and Planetary Sciences), MS thesis advisor Charles Barnhart (Earth and Planetary Sciences), PhD thesis committee Gary Hoffman (Earth and Planetary Sciences), PhD thesis committee Nancy McKeown (Earth and Planetary Sciences), PhD thesis committee Darcy Ogden (Earth and Planetary Sciences), PhD thesis committee Martha Evonuk (Earth Sciences), PhD thesis committee Delia Santiago (Earth and Planetary Sciences), MS thesis advisor Erin Kraal (Earth Sciences), PhD thesis advisor Randi Cohen (Astronomy and Astrophysics), PhD thesis committee Lisé Whitfield (Earth Sciences), MS thesis committee Javier Santillan (Earth Sciences), PhD thesis committee

International PhD Committee Membership:

Alice Chau, U. Zurich, Switzerland (opponent, 2020) Mika Takala, Tampere U., Finland (opponent, 2020) Andreas Reufer, Physikalisches Institut, Universtät Bern (2011) Martin Jutzi, Physikalisches Institut, Universtät Bern (2009)

Visiting PhD Scholars:

Bin Cheng, Tsinghua U., Beijing (2020)

Undergraduate Thesis Students Supervised

Arizona: NASA MIRO – co-advisor to several undergraduates per year on NASA exploration/engineering/science projects; 2019-present

ASU: co-advisor to Sarah Smallwood, Tyler McKinney

UCSC: primary thesis advisor to Elena Amador, Katherine Armstrong, Adam Bredt, Dan Chamberlain, Jaimie Chuu, Crystal Donnerly, Tucker Ely, Traci Engel, Harrison Gray, Shawn Hart, Aviva Maine, Jamie Mannion, Ben Moss, Alex Morgan, Stephen Sherman, Cindy-Renee Sloan, Patrick Testoni, Alexandra Wiener

ACADEMIC SERVICE

University/Department Committees and Responsibilities (U Arizona)

2022-present	LPL Facult	y Evaluation Committee
ZOZZ present	LI LI acard	, L'alaallon committee

2022-present Theoretical Astrophysics Program (TAP) Seminar Committee 2019-present LPL Oral Qualifying Exam, Standing Member for all exams

2021-2022 LPL Written Qualifying Exam Standing Member

2021-2022 Member, LPL Faulty Recruitment

2021-2022 LPL Colloquium Chair

2019-2021 Member/Chair, LPL Promotion and Tenure Committee 2018-2021 LPL Member, Theoretical Astrophysics Program (TAP)

2018 Chair, LPL Graduate Written Exam Committee

University/Department Committees and Responsibilities (ASU)

2016-2017 Faculty Evaluation Committee

2016-2017 Co-Chair, Graduate Admissions Committee
 2014-2017 Member, Graduate Admissions Committee
 2016-2017 Member, Geophysics faculty recruitment
 2014-2015 Chair, Planetary Sciences faculty recruitment
 2013 SESE Exploration Fellowship Selection Committee

2012-2013 Member, Exploration Systems Engineering faculty recruitment

University/Department Committees and Responsibilities (UCSC)

2010, 2011	Member, Academic Senate Committee on the Library
2010, 2011	Member, Chair, Graduate Admissions Committee
2009	Earth and Planetary Sciences faculty recruitment
2006	Science Writing Program Director recruitment
2005-2006	Senate Comm. on Rules, Jurisdictions & Elections
2003-2004	Chair, Planetary Sciences faculty recruitments
2002-2004	Academic Senate Committee on Academic Freedom
2000-2003	Graduate Preliminary Examination Committee

Event Organization

2001, 2003	Organizer.	CODEP Public	Guest Lecture	Series, Santa Cruz
	OI SWIIIZUI,	C C D LI I GCII	Chebt Lettaie	series, sama craz

2000-2002 Chair, CODEP Academic Seminars, IGPP

1998-2000 Chair, Planetary Science Academic Seminars, Earth Sciences

Other Academic Leadership

2018-	Director, Planet Formation	Lab (U Arizona	& external network)

2014- Science Lead, SpaceTREx Lab, ASU then U Arizona

2003-2007 Director, UCSC Center for the Origin, Dynamics and Evolution of

Planets – chaired the planetary science faculty recruitments

OTHER PROFESSIONAL ACTIVITIES

Senior Advisory Committees

2017-2022	Space Studies Board, NAS Committee on Astrobiology and
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Planetary Science (CAPS)

2009-2010 Primitive Bodies Panel, NRC Planetary Sciences Decadal Survey

Solar System Mission Participation

2019-	Science Team, NASA Double Asteroid Redirection Test (DART),
	team leads O. Barnouin, A. Stickle

2019-	International Science Team, ESA's Hera rendezvous with the
	Didymos asteroid system (ESA), science lead P. Michel

2019- Participating Scientist, OSIRIS-REx asteroid sample return

mission (NASA/UA), PI: D. Lauretta

2018- Core Science Team, MMX (Martian Moons eXploration) mission to Phobos and Deimos (JAXA), team lead H. Miyamoto

2016- Co-I, Psyche mission (NASA/ASU), PI: L. Elkins-Tanton

2006-2010 Co-I, Lunar Cratering Observation and Sensing Satellite LCROSS

(NASA Ames), PI: T. Colaprete

1996-2003 Solid State Imaging Team Associate, Galileo (NASA flagship

mission), team lead M. Belton

Significant Mission and Instrument Proposal Leadership

CoI, Chimera, NASA Discovery program, submitted 2019 (UArizona/Goddard), ranked Cat 1, to be the first rendezvous with a Centaur (PI: W. Harris)

Deputy PI, Remote Sensing Seismology, laser doppler vibrometry instrument submitted to MatISSE 2020, 2022 (PI: P. Sava, CSM)

Deputy PI, Science Lead, AOSAT+ (Asteroid Origins Satellite), NASA SIMPLEx program, submitted in 2019 (PI: J. Thangavelautham)

PI, CORE (Comet Radar Explorer), NASA Discovery program, submitted in 2010 (UCSC/JPL) and 2014 (ASU/JPL), Cat 2 ('selectable') both times.

Conference and Workshop Chair

- 2015 Convener & Program Chair, 2nd Conference on Spacecraft Reconnaissance of Asteroid and Comet Interiors (AstroRecon), ASU
- 2011 Co-Chair, Science Program Committee, 2nd International Conf. on the Exploration of Phobos and Deimos, NASA Ames
- 2006 Convener & Program Chair, 1st Conference on Spacecraft Reconnaissance of Asteroid and Comet Interiors, Santa Cruz
- 2003 Convener, UCSC Workshop on Asteroid Impact Tsunamis
- 2002 Chair, NASA Workshop on the Scientific Requirements for Mitigation of Hazardous Comets and Asteroids

Conference and Workshop Program Committee

- 2018 Catastrophic Disruption IX, Kobe, Japan
- 2013 Catastrophic Disruption VIII, Hawaii
- 2012 Formation & Evolution of Moons, Noordwijk, Netherlands
- 2007 Goldschmidt Conference
- 2007 Catastrophic Disruption VII, Alicante
- 2006 Workshop on Martian Water, NASA Ames
- 2003 35th Annual Meeting AAS/DPS
- 2003 Catastrophic Disruption VI, Cannes
- 1998 Catastrophic Disruption IV, Oregon
- 1995 Evolution of Igneous Asteroids, LPI, Houston

Review Boards, Panels and Committees

- 2021 Theoretical Astrophysics Program (TAP) Graduate Student Research Prize
- 2020 Judging Panel, *The Art of Planetary Science* (LPL/UArizona)
- 2018- Science Advisor, TEnQ Space Museum, Tokyo
- 2017 Science Advisor, JAXA MMX Landing Operation Working Team, U. Tokyo, 9/6/2017
- 2016 Science Panel, Space For All (ASU public evening event)
- 2015 NASA *Asteroid Redirect Mission* (ARM) Formulation Assessment and Support Team, 2015
- 2015 Space Studies Board, National Academies, Invited Speaker, *Human Exploration of Asteroids*
- 2015 JAXA, Sagamihara Japan, External Science Evaluation Committee, *Phobos Sample Return Mission*
- 2015 Space Studies Board, National Academies, Invited Panelist, Committee on Achieving Science Goals with Cubesats
- 2014 Keck Institute for Space Studies, Asteroid Return Mission Study
- 2009 External Reviewer, Defending Planet Earth: Near-Earth Object Surveys and Hazard Mitigation Strategies, NRC Space Studies Board
- 2008- International Astronautical Federation (IAF) *Technical Committee on Near-Earth Objects*
- 2007 Member, Core Team responding to Congressional Directive George E. Brown, Jr. Near-Earth Survey Act of 2005 (*Report to Congress* 3/8/2007)
- 2002, 2003 Eugene Shoemaker Impact Cratering Award Committee

Other Technical/Management

- 2011 Study Team, Asteroid Return Mission, Keck Institute for Space Studies
- 2011-2012 Study Team, *International Space Science Institute*, Response of Solid Celestial Bodies and their Granular Surfaces
- 2010 Study Lead, Near Earth Asteroid Trajectory Opportunities in 2020-2024, NASA/JPL report for the NASA Planetary Science Decadal Survey
- 2010 Study Team, *Asteroid Return Mission Feasibility Study*, Final Report for the 2010 NASA Innovation Fund

Membership in Professional Associations

American Geophysical Union (AGU)

International Astronautical Federation (IAF)

Division of Planetary Sciences of the American Astronomical Society (DPS) American Association for the Advancement of Science (AAAS)

Editorial or Board Service Commendations

- 2021 Editorial Board (Guest), Ann. Reviews of Earth and Planetary Science
- 2017 Recognized Reviewer, *Icarus*
- 2016 Outstanding Reviewer, Earth and Planetary Science Letters
- 2015 Outstanding Reviewer, Advances in Space Research
- 2015 Outstanding Reviewer, *Icarus*
- 2005-2008 Editorial Board (Guest), Ann. Reviews of Earth & Planetary Science
- 2001-2003 Associate Editor, Meteoritics and Planetary Science
- 1995 Letter of Commendation, Excellence in Reviewing, *Icarus*

Invited Talks and Seminars (since 2010)

- "Why Does the Moon Exist? Its Formation and its Perilous Early Fate", 3/1/23, Heiland Lecture, Colorado School of Mines (host P. Sava)
- "Origin of Vesta and Psyche", 1/24/18, Vesta Workshop, PSI (host D. Davis)
- "Why are Small Planets so Diverse?", 4/6/17, LPL Colloquium (host T. Swindle)
- "When Collisions Beget Collisions", 4/6/17, LPL Seminar (host T. Swindle)
- "What Nice Model", 3/1/17, LRO Virtual Team Meeting (host M. Robinson)
- "Dynamical Chaos and Hit and Run Collisions", 10/14/16, Cassini Team Workshop, Monrovia (host J. Cuzzi)
- "Phobos: Weak and Creaky?", 7/18/16, 3rd International Conference on the Exploration of Phobos and Deimos, NASA Ames (host Pascal Lee)
- "Grooves of Phobos", 1/22/16, UCLA IPAC (host Ed Young)
- "Oligarchs and Orphans", 1/21/16, UCLA EPSS Department Seminar (host V. Angelopoulos)
- "Early Solar System Collisions", 7/26/15, LPI workshop, Berkeley, The 1sts Billion Years of Impact Records (hosts W. Hartmann and A. Bouvier)
- "Meteorite Characterization", 12/3/14, NASA Ames Research Center (host D. Wooden)
- "Asteroid Structure", 7/7/14, Asteroids, Comets & Meteors, Helsinki Finland
- "Collisional Winnowing of Planetary Materials" (keynote), 6/10/14, Goldshmidt Conference, Sacramento CA (host K. Zahnle)
- "Diversity of Planets in the Aftermath of Late Stage Accretion", 12/15/13, AGU Fall Meeting (host G. Golabek)
- "High Resolution Radar Imaging of Comet Interiors", 12/7/12, AGU Fall Meeting (host J. Castillo-Rogez)
- "Interpretations and Implications", 8/8/12, Workshop on Asteroid Interiors, Boulder (host D. Scheeres)
- "Collisional Evolution of Asteroid Vesta", 6/20/12, ETH, Zurich, Switzerland (host Paul Tackley)
- "Phobos: Rubble Pile?", 6/18/12, ISSI Workshop on Granular Physics of Comets and Asteroids, Bern, Switzerland (host Patrick Michel)
- "Small Bodies and Rubble Piles", 6/7/12, Workshop on Dust, Atmosphere, and Plasma: Moon and Small Bodies, Boulder (host M. Horanyi)
- "Giant Impacts, Hit and Runs, and Splats", 4/11/12, MIT EAPS Colloquium (host B. Weiss)

- "Late Origin of the Saturn System", 3/12/12, LASP Colloquium, CU Boulder (host F. Bagenal)
- "Low and Slow", 2/28/12, Palo Alto Sub-Orbital Res. Conf. (host D. Durda)
- "Phobos, Comets, Vesta", 2/2/12, SESE Technical Seminar (host J. Bell)
- "Origin of the Lunar Farside", 2/1/12, ASU Colloquium (host J. Bell)
- "Forming the Moon", 1/19/12, UCSC Faculty Emeriti Assoc. (host J. Marcum)
- "Inefficient Collisions, Hit and Runs, and Splats", 11/30/11, SETI Seminar Series (host A. Brown; www.seti.org/talks)
- "Chondrule Production by Inefficient Accretion", 11/7/11, Workshop on Formation of the First Solids in the Solar System (host S. Krot)
- "Comet Radar Explorer", 8/11, International Primitive Bodies Exploration Working Group, Pasadena (host K. Grogan)
- "The Inefficiencies of Planetary Collisions", 6/11, Gordon Conference on the Origins of Solar Systems (host M. Mayer)
- "Similar-Sized Collisions, Planetary Diversity and Meteorite Origins", UCSC Astronomy Colloquium, 9/29/10 (host E. Ramirez-Ruiz)
- "Spacecraft Reconnaissance of Near-Earth Objects", University of Maryland Astronomy Dept. Colloquium, 8/9/10 (host Doug Hamilton)
- "Giant Impacts Large and Small", LASP Colloquium, U. Colorado, Boulder, 5/24/10 (host D. Scheeres)

Media Engagement (since 2010)

- "Search for Earth's Lost Moon", featured scientist, video documentary on asteroid Kamo'oalewa, aired on http://curiositystream.com, Sept. 2023
- "Science's Greatest Mysteries", extensive video interviews for "The Far Side of the Moon", televised on BBC Select, 2022, watch for free at https://www.rosskirby.co.uk/home/sciencesgreatestmysteries
- "Space rocks may have bounced off baby Earth, but slammed into Venus", *Science News* article by Lisa Grossman 10/6/2021
- "Storia Dimenticata del Cielo Notturno: le Due Lune di Erik Asphaug" in *Civiltà*Delle Machine 3/2021, p. 44-47
- "Why Geology is Crucial to Unlocking the Secrets of our Solar System", *The Cosmic Controversy Podcast*, Episode 34, Jan 21, 2021
- "When The Earth Had Two Moons", Part 2, 60-min book interview for *Science Fantastic*, weekly science radio program with Dr. Michio Kaku, 2/26/20
- "When The Earth Had Two Moons", Part 1, 60-min book interview for *Science Fantastic*, weekly science radio program with Dr. Michio Kaku, 2/19/20
- "When The Earth Had Two Moons", 20-min book interview with Louisiana Radio Network, 1/6/20
- "How old are Saturn's Rings?", *Scientific American*, interviewed for article by Nadia Drake, 4/18/2019
- "How the Universe Works 6: Solar System", Pioneer Productions, Science Channel, first aired Jan 23, 2018
- "Psyche", NHK Cosmic Front (Japan), first aired 12/11/17
- "Mars Moons Could be Remnants", https://arstechnica.com/science/2017/03
- "Spacecraft No Bigger than a Breadbox", listentospacepod.com, May 22, 2016

- "SWIMSAT", ASU Connection Podcast, http://conklinradio.com/swimsat/, March 21, 2016
- "Saturn Moons Could Be Young", Sky and Telescope, April 15, 2016
- "Scientists in the Dark over the Birth of the Moon", *Science Friday* radio interview, Oct 19, 2012
- "Why Is Everyone So Fascinated With the Far Side of the Moon?", *Pop. Mechanics*, Feb 21, 2012
- "Top 100 Stories of 2011 #23: The Moon Had a Long-Lost Twin", *Discover Magazine*, Jan-Feb 2012 Special Issue
- "What's the age of the Moon? It could be waning" (AP radio), Aug 17, 2011
- "Killer Shockwaves", television interview for *Underwater Universe*, History Channel, first aired March 19, 2011
- "Science in Action", radio interview, BBC World Service, 11 June 2010
- "On the Fringe", Science News magazine, 16 Jan 2010, p. 16
- "The Great Galactic Gold Rush", Playboy magazine, April 2011
- Jutzi & Asphaug (*Nature* 2011, 'Forming the Lunar Farside Highlands by the Accretion of a Companion Moon') was featured on the front page of *LA Times*, *Denver Post* and other papers, and in *The Economist* (2 print pages) and *Der Spiegel* (science lead). Radio interviews included NPR *Morning Edition*, BBC *Material World*, and BBC World Service *Science in Action*.

PROFESSIONAL WRITINGS

Peer-Refereed Articles and Chapters

Scopus lists 181 peer-refereed papers with 10155 cumulative citations, with 1093 citations in 2022, h=54

*primary advisor, +co-advisor to student/postdoc lead author

- 1. Barnouin, O., Ballouz, R.-L., Marchi, S., et al. (2023). The geology and evolution of the Near-Earth binary asteroid system (65803) Didymos. *Nature Communications*, in press.
- 2. Scott, E.R.D., Sanders, I.S., Asphaug, E., & Tomlinson, E.L. (2023). Discussion of the unique "eclogitic" clast reported from Northwest Africa 801 (CR2) and the possibility of ejection of foundered crust from deep in a molten Moon-sized projectile. *Meteoritics & Plan. Sci.*, in press.
- 3. Gowman*, G., Cotto-Figueroa, D., Ryan, A., Garvie, L.A.J., Hoover, C.G., and Asphaug, E. (2023). Roughness and angularity of fragments from meteorite disruption experiments. *Plan. Sci. J.* **4**, 187.
- 4. Daly, R.T., Ernst, C.M., Barnouin, O., et al. (2023). Successful kinetic impact into an asteroid for planetary defence. *Nature* **616** (7957), 443-447.
- 5. Cheng, B., Asphaug, E., Ballouz, R.L., Yu, Y. & Baoyin, H. (2023). Numerical simulations of drainage grooves in response to extensional fracturing: testing the Phobos groove formation model. *Plan. Sci. J.* **3**, 249
- 6. Pajola, M., Barnouin, O.S., Lucchetti, A., *et al.* (2022). Anticipated geological assessment of the (65803) Didymos–Dimorphos system, target of the DART–LICIACube mission. *Plan. Sci. J.* **3**, 210

- 7. Vance*, L.D., Thangavelautham, J., Asphaug, E. & Cotto-Figueroa, D. (2022). Possible particle ejection contributions to the shape and spin stability of small near-Earth asteroids. *Icarus* **384**, 115078.
- 8. Michel, P., <u>Küppers, M., Bagatin, A.C., et al. (2022)</u>. The ESA Hera mission: detailed characterization of the DART impact outcome and of the binary asteroid (65803) Didymos. *Plan. Sci. J.* **3**, 160
- 9. Jaumann, R., Bell, J.F. III, Polanskey, C.A., *et al.* (2022). The Psyche topography and geomorphology investigation. *Space Sci. Rev.* **218**:7
- 10. Elkins-Tanton, L.T., Asphaug, E., Bell, J.F. *et al.* (2022). Distinguishing the origin of asteroid (16) Psyche. *Space Sci. Rev.* **218**:17
- 11. Rozehnal, J., Broz, M., Nesvorny, D., Walsh, K.J., Durda, D.D., Richardson, D.C. & Asphaug, E. (2022). SPH simulations of high-speed collisions between asteroids and comets. *Icarus* **383**, 115064.
- 12. Nakajima, M., Genda, H., Asphaug, E. & Ida, S. (2022). Large planets may not form fractionally large moons. *Nature Comm.* **13**, 1-10
- 13. Cambioni, S., Asphaug, E. & Furfaro, R. (2022). Combining machine-learned regression models with Bayesian inference to interpret remote sensing data. *Machine Learning for Planetary Science*, 193-207
- 14. Rabbi, MF, Khafagy, KH, Garvie, LAJ, Asphaug, E & Cotto-Figueroa, D (2022). Strength and failure characterization of the Gibeon (IVA) iron meteorite. *Char. of Minerals, Metals, and Materials* 2022, 17-23
- 15. Cheng, B., Asphaug, E., Yu, Y. & Baoyin, H. (2022). Measuring the mechanical properties of small body regolith layers using a granular penetrometer. *Astrodynamics* 7, 15-29.
- 16. Emsenhuber, A, Mordasini, C, Burn, R & ... (2021). The new generation planetary population synthesis (NGPPS). II. Planetary population of solar-like stars and overview of statistical results. *Astron. & Astrophysics* AA/2020/38863
- 17. Cambioni, S, Delbo, M, Poggiali, G, & ... 2021, 'Fine-regolith production on asteroids controlled by rock porosity', *Nature* 598 (7879), 49-52
- 18. Asphaug, E, Emsenhuber, A, Cambioni, S, Gabriel, TSJ & Schwartz SR 2021, Collision chains among the terrestrial planets. III. Formation of the Moon. *Planetary Science Journal* 2 (5), 200
- 19. Rabbi, MF, Garvie, LAJ, Cotto-Figueroa, D, Asphaug, E, Khafagy, KH, Datta, S & Chattopadhyay, A (2021). Understanding asteroidal failure through quasi-static compression testing and 3-D digital image correlation of the Aba Panu (L3) chondrite. *Meteoritics & Plan. Sci.* 56 (12), 2131-2143
- 20. Emsenhuber, A, Asphaug, E, Cambioni, S, Gabriel, TSJ & Schwartz SR 2021, Collision chains among the terrestrial planets. II. An asymmetry between the Earth and Venus. *Planetary Science Journal* 2(5), 199
- 21. Emsenhuber⁺, A, Mordasini, C, Burn, R, Alibert, Y, Benz, W. & Asphaug, E 2021, 'The new generation planetary population synthesis (NGPPS). I. Bern global model of planet formation and evolution, model tests, and emerging planetary systems', *Astron. & Astrophysics*, Forthcoming article, DOI: https://doi.org/10.1051/0004-6361/202038553

- 22. Cambioni*, S, Jacobson, SA, Emsenhuber, A, Asphaug, E, Rubie, DC, Gabriel, TSJ, Schwartz, SR & Furfaro, R 2021. The effect of inefficient accretion on planetary differentiation. *Planetary Science Journal* 2, 93.
- 23. Cheng⁺, B, Yu, Y, Asphaug, E, Michel, P, Richardson, DC, Hirabayashi, M, & ... 2021, 'Reconstructing the formation history of top-shaped asteroids from the surface boulder distribution', *Nature Astr.* **5**, 134-138
- 24. Miyamoto, H, Niihara, T, Wada, K, Ogawa, K, Senshu, H, Michel, P, Kikuchi, H, & ... 2021, 'Surface Environment of Phobos and Phobos Simulant UTPS', *Earth, Planets and Space*, 10.21203/rs.3.rs-150345/v1.
- 25. Marsset, M, Brož, M, Vernazza, P, Drouard, A, Castillo-Rogez, J, Hanuš, J, & ... 2020, 'The violent collisional history of aqueously evolved (2) Pallas', *Nature Astronomy*, vol. 4, no. 6, pp. 569-576
- 26. Elkins-Tanton, LT, Asphaug, E, III, JF Bell, Bercovici, H, Bills, B, Binzel, R, & ... 2020, 'Observations, meteorites, and models: a preflight assessment of the composition and formation of (16) Psyche', *Journal of Geophysical Research: Planets 125 (3)*, e2019J, e6296
- 27. Marchi, S, Durda, DD, Polanskey, CA, Asphaug, E, Bottke, WF, & ... 2020, 'Hypervelocity impact experiments in iron-nickel ingots and iron meteorites: Implications for the NASA Psyche mission', *Journal of Geophysical Research: Planets 125 (2)*, e2019J, e5927
- 28. Ballouz, RL, Walsh, KJ, Barnouin, OS, DellaGiustina, DN, Asad, M Al, & ... 2020, 'Bennu's near-Earth lifetime of 1.75 million years inferred from craters on its boulders', *Nature*, vol. 587, no. 7833, pp. 205-209
- 29. Gabriel*, TSJ, Jackson, AP, Asphaug, E, Reufer, A, Jutzi, M, & Benz, W 2020, 'Gravity-dominated Collisions: A Model for the Largest Remnant Masses with Treatment for "Hit and Run" and Density Stratification', *The Astrophysical Journal*, vol. 892, no. 1, p. 40
- 30. Emsenhuber*, A, Cambioni, S, Asphaug, E, Gabriel, TSJ, Schwartz, SR, & ... 2020, 'Realistic On-the-fly Outcomes of Planetary Collisions. II. Bringing Machine Learning to N-body Simulations', *The Astrophysical Journal*, vol. 891, no. 1, p. 6
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Other Reports, Extended Abstracts and White Papers

Google Scholar lists 660 publications with 13998 citations and h=58, which includes unrefereed citations. The following unrefereed publications had n=10 or more citations when last queried in 2019.

- 1. Nallapu, RT, Thoesen, A, Garvie, L, Asphaug, E, & Thangavelautham, J 2017, 'Optimized bucket wheel design for asteroid excavation', arXiv preprint arXiv:1701., vol. 7547 (*n*=16)
- 2. Mazanek, DD, Reeves, DM, Abell, PA, Asphaug, E, Abreu, NM, Bell, JF, & ... 2016, 'Asteroid redirect mission (ARM) formulation assessment and support team (FAST) final report' (*n*=15)
- 3. Hernandez, V, Gankidi, P, Chandra, A, Miller, A, Scowen, P, Barnaby, H, & ... 2016, 'SWIMSat: Space Weather and Meteor Impact Monitoring using a Low-Cost 6U CubeSat' (*n*=14)
- 4. Asphaug, E, & Thangavelautham, J 2014, 'Asteroid regolith mechanics and primary accretion experiments in a CubeSat', 45th Lunar and Planetary Science Conference, vol. 2306 (*n*=20)
- 5. Elkins-Tanton, LT, Asphaug, E, Bell, J, Bercovici, D, Bills, BG, Binzel, RP, & ... 2014, 'Journey to a metal world: Concept for a discovery mission to Psyche', Lunar and Planetary Science Conference, vol. 1253 (*n*=18)
- 6. Brophy, J, Gershman, R, Landau, D, Polk, J, Porter, C, Yeomans, D, Allen, C, & ... 2011, 'Asteroid return mission feasibility study', 47th AIAA/ASME/SAE/ASEE Joint Propulsion Conference & Exhibit, vol. 5665 (*n*=35)
- 7. Brophy, JR, Gershman, R, Landau, D, Polk, J, Porter, C, Yeomans, D, Allen, C, & ... 2011, 'Feasibility of capturing and returning small Near-Earth Asteroids', Proc. 32nd International Electric Propulsion Conference, Wiesbaden, Germany (*n*=15)
- 8. Dobrea, EZ Noe, Asphaug, E, Grant, JA, Kessler, MA, & Mellon, MT 2007, 'Patterned ground as an alternative explanation for the formation of brain coral textures in the mid latitudes of Mars: HiRISE observations of lineated valley fill textures', Seventh International Conference on Mars, vol. 1353, 3358 (*n*=10)
- 9. Plesko, CS, Werner, SC, Brumby, SP, Asphaug, E, Neukum, G, & Team, 2006, 'A statistical analysis of automated crater counts in MOC and HRSC data', Lunar and Planetary Science Conference, vol. 37, 2012 (*n*=15)

- 10. Asphaug, E, Belton, MJS, Cangahuala, A, Keith, L, Klaasen, K, McFadden, L, & ... 2003, 'Exploring asteroid interiors: the Deep Interior mission concept', Lunar and Planetary Science Conference, vol. 34, 1906 (n=10)
- 11. Asphaug, E, King, PJ, Swift, MR, & Merrifield, MR 2001, 'Brazil nuts on Eros: Size-sorting of asteroid regolith', Lunar and Planetary Science Conference, vol. 32, 1708 (*n*=32)
- 12. Asphaug, E, & Nolan, MC 1992, 'Analytical and numerical predictions for regolith production on asteroids', Lunar and Planetary Science Conference, vol. 23 (*n*=16)
- 13. Nolan, MC, Asphaug, E, & Greenberg, R 1992, 'Numerical simulation of impacts on small asteroids', Bulletin of the American Astronomical Society, vol. 24, p. 959 (*n*=12)