# H Jay Melosh

List of Publications by Year
in descending order



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|---|---|---|---|
| 62 papers | 6,116 citations | 109137 35 h-index | 118652 62 g-index |
| 66 all docs | 66 docs citations | 66 times ranked | 3597 citing authors |

| # | Article | IF | Citations |
|---|---|---|---|
| 1 | The Crust of the Moon as Seen by GRAIL. Science, 2013, 339, 671-675. | 6.0 | 726 |
| 2 | IMPACT CRATER COLLAPSE. Annual Review of Earth and Planetary Sciences, 1999, 27, 385-415. | 4.6 | 428 |
| 3 | Gravity Field of the Moon from the Gravity Recovery and Interior Laboratory (GRAIL) Mission. Science, 2013, 339, 668-671. | 6.0 | 389 |
| 4 | Modeling damage and deformation in impact simulations. Meteoritics and Planetary Science, 2004, 39, 217-231. | 0.7 | 384 |
| 5 | The origin of the Moon and the single-impact hypothesis III. Icarus, 1989, 81, 113-131. | 1.1 | 353 |
| 6 | Dynamic fragmentation in impacts: Hydrocode simulation of laboratory impacts. Journal of Geophysical Research, 1992, 97, 14735-14759. | 3.3 | 270 |
| 7 | A hydrocode equation of state for SiO<sub>2</sub>. Meteoritics and Planetary Science, 2007, 42, 2079-2098. | 0.7 | 256 |
| 8 | Understanding Oblique Impacts from Experiments, Observations, and Modeling. Annual Review of Earth and Planetary Sciences, 2000, 28, 141-167. | 4.6 | 236 |
| 9 | Hydrocode modeling of oblique impacts: The fate of the projectile. Meteoritics and Planetary Science, 2000, 35, 117-130. | 0.7 | 187 |
| 10 | Lunar interior properties from the GRAIL mission. Journal of Geophysical Research E: Planets, 2014, 119, 1546-1578. | 1.5 | 185 |
| 11 | Hydrocode simulation of the Chicxulub impact event and the production of climatically active gases. Journal of Geophysical Research, 1998, 103, 28607-28625. | 3.3 | 182 |
| 12 | Ancient Igneous Intrusions and Early Expansion of the Moon Revealed by GRAIL Gravity Gradiometry. Science, 2013, 339, 675-678. | 6.0 | 177 |
| 13 | The Origin of Lunar Mascon Basins. Science, 2013, 340, 1552-1555. | 6.0 | 174 |
| 14 | Lunar impact basins revealed by Gravity Recovery and Interior Laboratory measurements. Science Advances, 2015, 1, e1500852. | 4.7 | 173 |
| 15 | Ejection of rock fragments from planetary bodies. Geology, 1985, 13, 144. | 2.0 | 119 |
| 16 | Impact spherules as a record of an ancient heavy bombardment of Earth. Nature, 2012, 485, 75-77. | 13.7 | 114 |
| 17 | Asymmetric Distribution of Lunar Impact Basins Caused by Variations in Target Properties. Science, 2013, 342, 724-726. | 6.0 | 103 |
| 18 | The mechanics of ringed basin formation. Geophysical Research Letters, 1978, 5, 985-988. | 1.5 | 98 |

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|---|---|---|---|
| 19 | Formation of the Orientale lunar multiring basin. Science, 2016, 354, 441-444. | 6.0 | 78 |
| 20 | Tectonics of mascon loading: Resolution of the strike-slip faulting paradox. Journal of Geophysical Research, 2001, 106, 20603-20620. | 3.3 | 74 |
| 21 | The reduction of friction in long runout landslides as an emergent phenomenon. Journal of Geophysical Research F: Earth Surface, 2016, 121, 881-889. | 1.0 | 71 |
| 22 | The Impact-Cratering Process. Elements, 2012, 8, 25-30. | 0.5 | 66 |
| 23 | The fractured Moon: Production and saturation of porosity in the lunar highlands from impact cratering. Geophysical Research Letters, 2015, 42, 6939-6944. | 1.5 | 63 |
| 24 | Detection of Intact Lava Tubes at Marius Hills on the Moon by SELENE (Kaguya) Lunar Radar Sounder. Geophysical Research Letters, 2017, 44, 10,155. | 1.5 | 62 |
| 25 | Drainage pits in cohesionless materials: Implications for the surface of Phobos. Journal of Geophysical Research, 1989, 94, 12433-12441. | 3.3 | 61 |
| 26 | Projectile remnants in central peaks of lunar impact craters. Nature Geoscience, 2013, 6, 435-437. | 5.4 | 60 |
| 27 | Self-shielding of thermal radiation by Chicxulub impact ejecta: Firestorm or fizzle?. Geology, 2009, 37, 1135-1138. | 2.0 | 57 |
| 28 | The formation of lunar mascon basins from impact to contemporary form. Journal of Geophysical Research E: Planets, 2014, 119, 2378-2397. | 1.5 | 57 |
| 29 | Evidence of large empty lava tubes on the Moon using GRAIL gravity. Geophysical Research Letters, 2017, 44, 105-112. | 1.5 | 52 |
| 30 | Preimpact porosity controls the gravity signature of lunar craters. Geophysical Research Letters, 2015, 42, 9711-9716. | 1.5 | 50 |
| 31 | Meteor Crater formed by low-velocity impact. Nature, 2005, 434, 157-157. | 13.7 | 49 |
| 32 | Hydrocode simulation of Ganymede and Europa cratering trends â€" How thick is Europaâ€™s crust?. Icarus, 2014, 231, 394-406. | 1.1 | 49 |
| 33 | The structural stability of lunar lava tubes. Icarus, 2017, 282, 47-55. | 1.1 | 41 |
| 34 | Credit for Impact Theory. Science, 2013, 342, 1445-1446. | 6.0 | 38 |
| 35 | Gravity field of the Orientale basin from the Gravity Recovery and Interior Laboratory Mission. Science, 2016, 354, 438-441. | 6.0 | 38 |
| 36 | A simple mechanical model of Valhalla Basin, Callisto. Journal of Geophysical Research, 1982, 87, 1880-1890. | 3.3 | 33 |

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|---|---|---|---|
| 37 | New approaches to the Moon's isotopic crisis. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2014, 372, 20130168. | 1.6 | 33 |
| 38 | On the origin of graben and ridges within and near volcanically buried craters and basins in Mercury's northern plains. Journal of Geophysical Research, 2012, 117, . | 3.3 | 30 |
| 39 | HCN Production via Impact Ejecta Reentry During the Late Heavy Bombardment. Journal of Geophysical Research E: Planets, 2018, 123, 892-909. | 1.5 | 30 |
| 40 | Impact Fragmentation and the Development of the Deep Lunar Megaregolith. Journal of Geophysical Research E: Planets, 2019, 124, 941-957. | 1.5 | 27 |
| 41 | Detection and characterization of buried lunar craters with GRAIL data. Icarus, 2017, 289, 157-172. | 1.1 | 25 |
| 42 | Lunar lava tubes: Morphology to structural stability. Icarus, 2020, 338, 113442. | 1.1 | 25 |
| 43 | Scaling laws for the geometry of an impact-induced magma ocean. Earth and Planetary Science Letters, 2021, 568, 116983. | 1.8 | 25 |
| 44 | Antipodal terrains created by the Rheasilvia basin forming impact on asteroid 4 Vesta. Journal of Geophysical Research E: Planets, 2013, 118, 1821-1834. | 1.5 | 22 |
| 45 | Deep Structure of the Lunar South Poleâ€Aitken Basin. Geophysical Research Letters, 2019, 46, 5100-5106. | 1.5 | 22 |
| 46 | The Role of Breccia Lenses in Regolith Generation From the Formation of Small, Simple Craters: Application to the Apollo 15 Landing Site. Journal of Geophysical Research E: Planets, 2018, 123, 527-543. | 1.5 | 21 |
| 47 | NOxproduction and rainout from Chicxulub impact ejecta reentry. Journal of Geophysical Research E: Planets, 2015, 120, 2152-2168. | 1.5 | 19 |
| 48 | Controls on the Formation of Lunar Multiring Basins. Journal of Geophysical Research E: Planets, 2018, 123, 3035-3050. | 1.5 | 19 |
| 49 | Why the lunar South Pole-Aitken Basin is not a mascon. Icarus, 2020, 352, 113995. | 1.1 | 16 |
| 50 | Ceres Crater Degradation Inferred From Concentric Fracturing. Journal of Geophysical Research E: Planets, 2019, 124, 1188-1203. | 1.5 | 15 |
| 51 | Shock viscosity and rise time of explosion waves in geologic media. Journal of Applied Physics, 2003, 94, 4320-4325. | 1.1 | 13 |
| 52 | Slow Impacts on Strong Targets Bring on the Heat. Geophysical Research Letters, 2018, 45, 2597-2599. | 1.5 | 12 |
| 53 | Air penetration enhances fragmentation of entering meteoroids. Meteoritics and Planetary Science, 2018, 53, 493-504. | 0.7 | 12 |
| 54 | Pluto's Antipodal Terrains Imply a Thick Subsurface Ocean and Hydrated Core. Geophysical Research Letters, 2021, 48, e2020GL091596. | 1.5 | 9 |

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|---|---|---|---|
| 55 | Impact geologists, beware!. Geophysical Research Letters, 2017, 44, 8873-8874. | 1.5 | 8 |
| 56 | A nonlinear and timeâ€dependent viscoâ€elastoâ€plastic rheology model for studying shockâ€physics phenomena. Engineering Reports, 2020, 2, e12322. | 0.9 | 7 |
| 57 | Bombardment history of the Moon constrained by crustal porosity. Nature Geoscience, 2022, 15, 531-535. | 5.4 | 7 |
| 58 | The Australasian tektite source crater: Found at last?. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 1252-1253. | 3.3 | 6 |
| 59 | Reply to comment by Iverson on â€œThe reduction of friction in long runout landslides as an emergent phenomenonâ€. Journal of Geophysical Research F: Earth Surface, 2016, 121, 2243-2246. | 1.0 | 5 |
| 60 | HCN production from impact ejecta on the early Earth. AIP Conference Proceedings, 2016, , . | 0.3 | 3 |
| 61 | Why the Moon is so like the Earth. Nature Geoscience, 2019, 12, 402-403. | 5.4 | 2 |
| 62 | Feasibility Study of a Highâ€Resolution Shallow Surface Penetration Radar for Space Application. Radio Science, 2021, 56, e2020RS007118. | 0.8 | 1 |