H Jay Melosh

List of Publications by Year
in descending order

62 papers	6,116 citations	109321 35 h-index	118850 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.	12.6	726
2	IMPACT CRATER COLLAPSE. Annual Review of Earth and Planetary Sciences, 1999, 27, 385-415.	11.0	428
3	Gravity Field of the Moon from the Gravity Recovery and Interior Laboratory (GRAIL) Mission. Science, 2013, 339, 668-671.	12.6	389
4	Modeling damage and deformation in impact simulations. Meteoritics and Planetary Science, 2004, 39, 217-231.	1.6	384
5	The origin of the Moon and the single-impact hypothesis III. Icarus, 1989, 81, 113-131.	2.5	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 SiO₂. Meteoritics and Planetary Science, 2007, 42, 2079-2098.	1.6	256
8	Understanding Oblique Impacts from Experiments, Observations, and Modeling. Annual Review of Earth and Planetary Sciences, 2000, 28, 141-167.	11.0	236
9	Hydrocode modeling of oblique impacts: The fate of the projectile. Meteoritics and Planetary Science, 2000, 35, 117-130.	1.6	187
10	Lunar interior properties from the GRAIL mission. Journal of Geophysical Research E: Planets, 2014, 119, 1546-1578.	3.6	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.	12.6	177
13	The Origin of Lunar Mascon Basins. Science, 2013, 340, 1552-1555.	12.6	174
14	Lunar impact basins revealed by Gravity Recovery and Interior Laboratory measurements. Science Advances, 2015, 1, e1500852.	10.3	173
15	Ejection of rock fragments from planetary bodies. Geology, 1985, 13, 144.	4.4	119
16	Impact spherules as a record of an ancient heavy bombardment of Earth. Nature, 2012, 485, 75-77.	27.8	114
17	Asymmetric Distribution of Lunar Impact Basins Caused by Variations in Target Properties. Science, 2013, 342, 724-726.	12.6	103
18	The mechanics of ringed basin formation. Geophysical Research Letters, 1978, 5, 985-988.	4.0	98

#	ARTICLE	IF	CITATIONS
19	Formation of the Orientale lunar multiring basin. Science, 2016, 354, 441-444.	12.6	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.	2.8	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.	4.0	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.	4.0	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.	12.9	60
27	Self-shielding of thermal radiation by Chicxulub impact ejecta: Firestorm or fizzle?. Geology, 2009, 37, 1135-1138.	4.4	57
28	The formation of lunar mascon basins from impact to contemporary form. Journal of Geophysical Research E: Planets, 2014, 119, 2378-2397.	3.6	57
29	Evidence of large empty lava tubes on the Moon using GRAIL gravity. Geophysical Research Letters, 2017, 44, 105-112.	4.0	52
30	Preimpact porosity controls the gravity signature of lunar craters. Geophysical Research Letters, 2015, 42, 9711-9716.	4.0	50
31	Meteor Crater formed by low-velocity impact. Nature, 2005, 434, 157-157.	27.8	49
32	Hydrocode simulation of Ganymede and Europa cratering trends â€“ How thick is Europaâ€™s crust?. Icarus, 2014, 231, 394-406.	2.5	49
33	The structural stability of lunar lava tubes. Icarus, 2017, 282, 47-55.	2.5	41
34	Credit for Impact Theory. Science, 2013, 342, 1445-1446.	12.6	38
35	Gravity field of the Orientale basin from the Gravity Recovery and Interior Laboratory Mission. Science, 2016, 354, 438-441.	12.6	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.	3.4	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.	3.6	30
40	Impact Fragmentation and the Development of the Deep Lunar Megaregolith. Journal of Geophysical Research E: Planets, 2019, 124, 941-957.	3.6	27
41	Detection and characterization of buried lunar craters with GRAIL data. Icarus, 2017, 289, 157-172.	2.5	25
42	Lunar lava tubes: Morphology to structural stability. Icarus, 2020, 338, 113442.	2.5	25
43	Scaling laws for the geometry of an impact-induced magma ocean. Earth and Planetary Science Letters, 2021, 568, 116983.	4.4	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.	3.6	22
45	Deep Structure of the Lunar South Poleâ€Aitken Basin. Geophysical Research Letters, 2019, 46, 5100-5106.	4.0	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.	3.6	21
47	NOxproduction and rainout from Chicxulub impact ejecta reentry. Journal of Geophysical Research E: Planets, 2015, 120, 2152-2168.	3.6	19
48	Controls on the Formation of Lunar Multiring Basins. Journal of Geophysical Research E: Planets, 2018, 123, 3035-3050.	3.6	19
49	Why the lunar South Pole-Aitken Basin is not a mascon. Icarus, 2020, 352, 113995.	2.5	16
50	Ceres Crater Degradation Inferred From Concentric Fracturing. Journal of Geophysical Research E: Planets, 2019, 124, 1188-1203.	3.6	15
51	Shock viscosity and rise time of explosion waves in geologic media. Journal of Applied Physics, 2003, 94, 4320-4325.	2.5	13
52	Slow Impacts on Strong Targets Bring on the Heat. Geophysical Research Letters, 2018, 45, 2597-2599.	4.0	12
53	Air penetration enhances fragmentation of entering meteoroids. Meteoritics and Planetary Science, 2018, 53, 493-504.	1.6	12
54	Pluto's Antipodal Terrains Imply a Thick Subsurface Ocean and Hydrated Core. Geophysical Research Letters, 2021, 48, e2020GL091596.	4.0	9

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55	Impact geologists, beware!. Geophysical Research Letters, 2017, 44, 8873-8874.	4.0	8
56	A nonlinear and timeâ€dependent viscoâ€elastoâ€plastic rheology model for studying shockâ€physics phenomena. Engineering Reports, 2020, 2, e12322.	1.7	7
57	Bombardment history of the Moon constrained by crustal porosity. Nature Geoscience, 2022, 15, 531-535.	12.9	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.	7.1	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.	2.8	5
60	HCN production from impact ejecta on the early Earth. AIP Conference Proceedings, 2016, , .	0.4	3
61	Why the Moon is so like the Earth. Nature Geoscience, 2019, 12, 402-403.	12.9	2
62	Feasibility Study of a Highâ€Resolution Shallow Surface Penetration Radar for Space Application. Radio Science, 2021, 56, e2020RS007118.	1.6	1