Doris Breuer

List of Publications by Year
in descending order

129 papers	5,294 citations	50276 46 h-index	95266 68 g-index
149 all docs	149 docs citations	149 times ranked	3258 citing authors

#	Article	IF	Citations
1	Implications from Galileo Observations on the Interior Structure and Chemistry of the Galilean Satellites. Icarus, 2002, 157, 104-119.	2.5	204
2	Asymmetric thermal evolution of the Moon. Journal of Geophysical Research E: Planets, 2013, 118, 1435-1452.	3.6	193
3	Early plate tectonics versus single-plate tectonics on Mars: Evidence from magnetic field history and crust evolution. Journal of Geophysical Research, 2003, 108, .	3.3	187
4	Outgassing History and Escape of the Martian Atmosphere and Water Inventory. Space Science Reviews, 2013, 174, 113-154.	8.1	159
5	Volcanic outgassing of CO2 and H2O on Mars. Earth and Planetary Science Letters, 2011, 308, 391-400.	4.4	139
6	Long-Term Evolution of the Martian Crust-Mantle System. Space Science Reviews, 2013, 174, 49-111.	8.1	124
7	THE INFLUENCE OF PRESSURE-DEPENDENT VISCOSITY ON THE THERMAL EVOLUTION OF SUPER-EARTHS. Astrophysical Journal, 2012, 748, 41.	4.5	117
8	Differentiation of Vesta: Implications for a shallow magma ocean. Earth and Planetary Science Letters, 2014, 395, 267-280.	4.4	117
9	Crustal recycling, mantle dehydration, and the thermal evolution of Mars. Icarus, 2011, 212, 541-558.	2.5	113
10	Thermochemical evolution of Mercury's interior. Journal of Geophysical Research E: Planets, 2013, 118, 2474-2487.	3.6	113
11	A Comparative Study of the Influence of the Active Young Sun on the Early Atmospheres of Earth, Venus, and Mars. Space Science Reviews, 2007, 129, 207-243.	8.1	110
12	Thermal and transport properties of mantle rock at high pressure: Applications to super-Earths. Icarus, 2011, 216, 572-596.	2.5	110
13	Plate tectonics on rocky exoplanets: Influence of initial conditions and mantle rheology. Planetary and Space Science, 2014, 98, 41-49.	1.7	106
14	A long-lived lunar dynamo powered by core crystallization. Earth and Planetary Science Letters, 2014, 401, 251-260.	4.4	105
15	The Heat Flow and Physical Properties Package (HP3) for the InSight Mission. Space Science Reviews, 2018, 214, 1.	8.1	105
16	Numerical Modeling of 26Al-Induced Radioactive Melting of Asteroids Considering Accretion. Icarus, 2002, 159, 183-191.	2.5	102
17	Viscosity of the Martian mantle and its initial temperature: Constraints from crust formation history and the evolution of the magnetic field. Planetary and Space Science, 2006, 54, 153-169.	1.7	96
18	The Longevity of Lunar Volcanism: Implications of Thermal Evolution Calculations with 2D and 3D Mantle Convection Models. Icarus, 2001, 149, 54-65.	2.5	95

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19	Pre-mission InSights on the Interior of Mars. Space Science Reviews, 2019, 215, 1.	8.1	85
20	Geophysical Constraints on the Evolution of Mars. Space Science Reviews, 2001, 96, 231-262.	8.1	83
21	How large are present-day heat flux variations across the surface of Mars?. Journal of Geophysical Research E: Planets, 2016, 121, 2386-2403.	3.6	81
22	The evolution of the martian elastic lithosphere and implications for crustal and mantle rheology. Icarus, 2008, 193, 503-515.	2.5	78
23	A long-lived magma ocean on a young Moon. Science Advances, 2020, 6, eaba8949.	10.3	76
24	Interior Evolution of Mercury. Space Science Reviews, 2007, 132, 229-260.	8.1	71
25	Thermo-chemical evolution and global contraction of mercury. Earth and Planetary Science Letters, 2011, 307, 135-146.	4.4	71
26	Three dimensional models of Martian mantle convection with phase transitions. Geophysical Research Letters, 1998, 25, 229-232.	4.0	70
27	Onset of solidâ€state mantle convection and mixing during magma ocean solidification. Journal of Geophysical Research E: Planets, 2017, 122, 577-598.	3.6	69
28	The Thermal State and Interior Structure of Mars. Geophysical Research Letters, 2018, 45, 12,198.	4.0	69
29	Phase transitions in the Martian mantle: Implications for partially layered convection. Earth and Planetary Science Letters, 1997, 148, 457-469.	4.4	67
30	Possible flush instability in mantle convection at the Archaeanâ€“Proterozoic transition. Nature, 1995, 378, 608-610.	27.8	66
31	On the spatial variability of the Martian elastic lithosphere thickness: Evidence for mantle plumes?. Journal of Geophysical Research, 2010, 115, .	3.3	65
32	Thermal Evolution and Magnetic Field Generation inÂTerrestrial Planets and Satellites. Space Science Reviews, 2010, 152, 449-500.	8.1	64
33	Differentiation and core formation in accreting planetesimals. Astronomy and Astrophysics, 2012, 543, A141.	5.1	64
34	The habitability of a stagnant-lid Earth. Astronomy and Astrophysics, 2017, 605, A71.	5.1	63
35	The NetLander very broad band seismometer. Planetary and Space Science, 2000, 48, 1289-1302.	1.7	61
36	Iron snow, crystal floats, and inner-core growth: modes of core solidification and implications for dynamos in terrestrial planets and moons. Progress in Earth and Planetary Science, 2015, 2, .	3.0	61

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37	Coupling the atmosphere with interior dynamics: Implications for the resurfacing of Venus. Icarus, 2012, 217, 484-498.	2.5	60
38	A model for the interior structure, evolution, and differentiation of Callisto. Icarus, 2004, 169, 402-412.	2.5	57
39	Can the interior structure influence the habitability of a rocky planet?. Planetary and Space Science, 2014, 98, 14-29.	1.7	55
40	Influence of a variable thermal conductivity on the thermochemical evolution of Mars. Journal of Geophysical Research, 2006, 111, n/a-n/a.	3.3	53
41	Planetary Magnetic Dynamo Effect on Atmospheric Protection of Early Earth and Mars. Space Science Reviews, 2007, 129, 279-300.	8.1	53
42	Mantle differentiation and the crustal dichotomy of Mars. Planetary and Space Science, 1993, 41, 269-283.	1.7	50
43	The Fe snow regime in Ganymede's core: A deepâ€seated dynamo below a stable snow zone. Journal of Geophysical Research E: Planets, 2015, 120, 1095-1118.	3.6	49
44	Thermal evolution and Urey ratio of Mars. Journal of Geophysical Research E: Planets, 2015, 120, 995-1010.	3.6	48
45	Modeling the evolution of the parent body of acapulcoites and lodranites: A case study for partially differentiated asteroids. Icarus, 2018, 311, 146-169.	2.5	48
46	An alternative mechanism for recent volcanism on Mars. Geophysical Research Letters, 2007, 34, .	4.0	47
47	Geophysical and Atmospheric Evolution of Habitable Planets. Astrobiology, 2010, 10, 45-68.	3.0	47
48	A review of volatiles in the Martian interior. Meteoritics and Planetary Science, 2016, 51, 1935-1958.	1.6	43
49	The next frontier for planetary and human exploration. Nature Astronomy, 2019, 3, 116-120.	10.1	39
50	Phase transitions in the Martian mantle: Implications for the planet's volcanic history. Journal of Geophysical Research, 1996, 101, 7531-7542.	3.3	36
51	Overturn and evolution of a crystallized magma ocean: A numerical parameter study for Mars. Journal of Geophysical Research E: Planets, 2013, 118, 1512-1528.	3.6	35
52	Presentâ€Day Mars' Seismicity Predicted From 3â€D Thermal Evolution Models of Interior Dynamics. Geophysical Research Letters, 2018, 45, 2580-2589.	4.0	35
53	Dynamics and Thermal History of the Terrestrial Planets, the Moon, and Io. , 2007, , 299-348.		35
54	Overturn of Ilmeniteâ€Bearing Cumulates in a Rheologically Weak Lunar Mantle. Journal of Geophysical Research E: Planets, 2019, 124, 418-436.	3.6	34

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55	Cooling of the Earth, Urey ratios, and the problem of potassium in the core. Geophysical Research Letters, 1993, 20, 1655-1658.	4.0	33
56	Future Mars geophysical observatories for understanding its internal structure, rotation, and evolution. Planetary and Space Science, 2012, 68, 123-145.	1.7	32
57	Sheet-like and plume-like thermal flow in a spherical convection experiment performed under microgravity. Journal of Fluid Mechanics, 2013, 735, 647-683.	3.4	32
58	Can a fractionally crystallized magma ocean explain the thermo-chemical evolution of Mars?. Earth and Planetary Science Letters, 2014, 403, 225-235.	4.4	31
59	Implications of large elastic thicknesses for the composition and current thermal state of Mars. Icarus, 2009, 201, 540-548.	2.5	30
60	Partial melting in one-plate planets: Implications for thermo-chemical and atmospheric evolution. Planetary and Space Science, 2014, 98, 50-65.	1.7	30
61	The tectonic mode of rocky planets: Part 1 â€“ Driving factors, models & parameters. Icarus, 2014, 234, 174-193.	2.5	30
62	Dynamics and Thermal History of the Terrestrial Planets, the Moon, and Io. , 2015, , 255-305.		30
63	Deglacial land emergence and lateral upper-mantle heterogeneity in the Svalbard Archipelago-I. First results for simple load models. Geophysical Journal International, 1995, 121, 775-788.	2.4	29
64	Water, Life, and Planetary Geodynamical Evolution. Space Science Reviews, 2007, 129, 167-203.	8.1	28
65	Scaling laws of convection for cooling planets in a stagnant lid regime. Physics of the Earth and Planetary Interiors, 2019, 286, 138-153.	1.9	28
66	Constraints on the maximum crustal density from gravityâ€“topography modeling: Applications to the southern highlands of Mars. Earth and Planetary Science Letters, 2008, 276, 253-261.	4.4	27
67	Modelling the internal structure of Ceres: Coupling of accretion with compaction by creep and implications for the water-rock differentiation. Astronomy and Astrophysics, 2015, 584, A117.	5.1	25
68	Hemispheric Dichotomy in Lithosphere Thickness on Mars Caused by Differences in Crustal Structure and Composition. Journal of Geophysical Research E: Planets, 2018, 123, 823-848.	3.6	24
69	Dynamics and Thermal History of the Terrestrial Planets, the Moon, and Io. , 2007, , 299-348.		23
70	Top-down freezing in a Feâ€“FeS core and Ganymedeâ€™s present-day magnetic field. Icarus, 2018, 307, 172-196	2.5	21
71	Modelling of compaction in planetesimals. Astronomy and Astrophysics, 2014, 567, A120.	5.1	20
72	Water in the Martian interiorâ€"The geodynamical perspective. Meteoritics and Planetary Science, 2016, 51, 1959-1992.	1.6	20

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73	On the relative importance of thermal and chemical buoyancy in regular and impactâ€induced melting in a Marsâ€like planet. Journal of Geophysical Research E: Planets, 2017, 122, 1554-1579.	3.6	20
74	First- and second-order Frank-Kamenetskii approximation applied to temperature-, pressure- and stress-dependent rheology. Geophysical Journal International, 2013, 195, 27-46.	2.4	18
75	Retrieval of the Fluid Love Number k₂ in Exoplanetary Transit Curves. Astrophysical Journal, 2019, 878, 119.	4.5	18
76	The Determination of the Rotational State and Interior Structure of Venus with VERITAS. Planetary Science Journal, 2021, 2, 220.	3.6	18
77	Phase transitions in the Martian mantle and the generation of megaplumes. Geophysical Research Letters, 1995, 22, 1945-1948.	4.0	17
78	Mercury's lowâ€degree geoid and topography controlled by insolationâ€driven elastic deformation. Geophysical Research Letters, 2015, 42, 7327-7335.	4.0	16
79	Gravity signals on Europa from silicate shell density variations. Journal of Geophysical Research, 2010, 115, .	3.3	15
80	Estimating precipitation on early Mars using a radiative-convective model of the atmosphere and comparison with inferred runoff from geomorphology. Planetary and Space Science, 2015, 105, 133-147.	1.7	15
81	The thermo-chemical evolution of Asteroid 21 Lutetia. Icarus, 2013, 224, 126-143.	2.5	14
82	Marsâ€™ atmospheric 40Ar: A tracer for past crustal erosion. Icarus, 2012, 218, 561-570.	2.5	12
83	Regime classification and planform scaling for internally heated mantle convection. Physics of the Earth and Planetary Interiors, 2011, 186, 111-124.	1.9	11
84	Delta Deposits on Mars: A Global Perspective. Geophysical Research Letters, 2021, 48, e2021GL094271.	4.0	11
85	Multistage Core Formation in Planetesimals Revealed by Numerical Modeling and Hfâ€W Chronometry of Iron Meteorites. Journal of Geophysical Research E: Planets, 2018, 123, 421-444.	3.6	10
86	Seismic Velocity Variations in a 3D Martian Mantle: Implications for the InSight Measurements. Journal of Geophysical Research E: Planets, 2021, 126, e2020JE006755.	3.6	10
87	Constraints on the radiogenic heat production rate in the Martian interior from viscous relaxation of crustal thickness variations. Geophysical Research Letters, 2008, 35, .	4.0	8
88	Mars environment and magnetic orbiter model payload. Experimental Astronomy, 2009, 23, 761-783.	3.7	7
89	4.2.3.4 Dynamics and thermal evolution. Landolt-Bâˆšâˆ‚rnstein - Group VI Astronomy and Astrophysics, 2009, , 323-344.	0.1	7
90	Employing magma ocean crystallization models to constrain structure and composition of the lunar interior. Physics of the Earth and Planetary Interiors, 2022, 322, 106831.	1.9	7

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91	Symmetries of volcanic distributions on Mars and Earth and their mantle plume dynamics. Journal of Geophysical Research, 1998, 103, 28587-28597.	3.3	6
92	The Lavoisier mission : A system of descent probe and balloon flotilla for geochemical investigation of the deep atmosphere and surface of Venus. Advances in Space Research, 2002, 29, 255-264.	2.6	6
93	Stagnant-lid convection with diffusion and dislocation creep rheology: Influence of a non-evolving grain size. Geophysical Journal International, 2020, 220, 18-36.	2.4	6
94	A machine-learning-based surrogate model of Marsâ€™ thermal evolution. Geophysical Journal International, 2020, 222, 1656-1670.	2.4	6
95	Outgassing History and Escape of the Martian Atmosphere and Water Inventory. Space Sciences Series of ISSI, 2012, , 113-154.	0.0	6
96	Deep learning for surrogate modeling of two-dimensional mantle convection. Physical Review Fluids, 2021, 6, .	2.5	6
97	Dynamical effects of multiple impacts: Large impacts on a Mars-like planet. Physics of the Earth and Planetary Interiors, 2019, 287, 76-92.	1.9	5
98	Toward Constraining Mars' Thermal Evolution Using Machine Learning. Earth and Space Science, 2021, 8, e2020EA001484.	2.6	5
99	Planetary Magnetic Dynamo Effect on Atmospheric Protection of Early Earth and Mars. Space Sciences Series of ISSI, 2007, , 279-300.	0.0	5
100	Interior and Surface Dynamics of Terrestrial Bodies and their Implications for the Habitability. Cellular Origin and Life in Extreme Habitats, 2013, , 203-233.	0.3	5
101	Geophysical Constraints on the Evolution of Mars. Space Sciences Series of ISSI, 2001, , 231-262.	0.0	5
102	MAGMARS: A Melting Model for the Martian Mantle and FeOâ€Rich Peridotite. Journal of Geophysical Research E: Planets, 2021, 126, e2021JE006985.	3.6	5
103	Interiors of Earth-Like Planets and Satellites of the Solar System. Surveys in Geophysics, 0, , 1.	4.6	5
104	Scientific objectives of the DYNAMO mission. Advances in Space Research, 2001, 27, 1851-1860.	2.6	4
105	Mars Environment and Magnetic Orbiter Scientific and Measurement Objectives. Astrobiology, 2009, 9, 71-89.	3.0	4
106	Water-Rock Differentiation of Icy Bodies by Darcy law, Stokes law, and Two-Phase Flow. Proceedings of the International Astronomical Union, 2015, 11, 261-266.	0.0	4
107	â€œIsocraterâ€•impacts: Conditions and mantle dynamical responses for different impactor types. Icarus, 2018, 306, 94-115.	2.5	4
108	A Comparative Study of the Influence of the Active Young Sun on the Early Atmospheres of Earth, Venus, and Mars. Space Sciences Series of ISSI, 2007, , 207-243.	0.0	4

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109	Long-Term Evolution of the Martian Crust-Mantle System. Space Sciences Series of ISSI, 2012, , 49-111.	0.0	4
110	DYNAMO: a Mars upper atmosphere package for investigating solar wind interaction and escape processes, and mapping Martian fields. Advances in Space Research, 2004, 33, 2228-2235.	2.6	3
111	Correction to â€œInfluence of a variable thermal conductivity on the thermochemical evolution of Marsâ€• Journal of Geophysical Research, 2006, 111, .	3.3	3
112	Evolution of Planetary Interiors. , 2014, , 185-208.		2
113	PLANET TOPERS: Planets, Tracing the Transfer, Origin, Preservation, and Evolution of their ReservoirS. Origins of Life and Evolution of Biospheres, 2016, 46, 369-384.	1.9	2
114	Magnetic Field Evolution in Terrestrial Bodies from Planetesimals to Exoplanets. , 2019, , 267-285.		2
115	Electrical and seismological structure of the martian mantle and the detectability of impact-generated anomalies. Icarus, 2021, 358, 114176.	2.5	2
116	How would life factor in the evolution of planetary interiors?. Physics of Life Reviews, 2010, 7, 471-472.	2.8	1
117	Early planetary atmospheres and surfaces: Origin of the Earthâ€™s water, crust and atmosphere. Proceedings of the International Astronomical Union, 2018, 14, 156-163.	0.0	1
118	Interior Evolution of Mercury. Space Sciences Series of ISSI, 2008, , 47-78.	0.0	1
119	Large Scale Numerical Simulations of Planetary Interiors. , 2016, , 675-687.		1
120	A Particle-in-Cell Method to Model the Influence of Partial Melt on Mantle Convection. , 2013, , 461-472.		1
121	SCIENTIFIC AND TECHNICAL ASPECTS OF THE ESA MARSNEXT MISSION. , 0, , 235-249.		1
122	Water, Life, and Planetary Geodynamical Evolution. Space Sciences Series of ISSI, 2007, , 167-203.	0.0	1
123	Planetary Magnetismâ€”Foreword. Space Science Reviews, 2010, 152, 1-3.	8.1	0
124	Thermal Evolution and Magnetic Field Generation inÂTerrestrial Planets and Satellites. Space Sciences Series of ISSI, 2010, , 449-500.	0.0	0
125	Magma Ocean Cumulate Overturn and Its Implications for the Thermo-chemical Evolution of Mars. , 2013, , 619-634.		0
126	Thermo-Chemical Mantle Convection Simulations Using Gaia. , 2015, , 613-627.		0

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127	Interiors and Atmospheres. , 2018, , 221-245.		0
128	Mantle Convection. , 2019, , 1-9.		0
129	The Internal Evolution of Vesta. , 2022, , 53-66.		0