James Badro

List of Publications by Year in descending order

89 papers	6,352 citations	57631 44 h-index	64668 79 g-index
103 all docs	103 docs citations	103 times ranked	4023 citing authors

#	Article	IF	Citations
1	Synthesis and characterization of a binary noble metal nitride. Nature Materials, 2004, 3, 294-297.	13.3	500
2	Iron Partitioning in Earth's Mantle: Toward a Deep Lower Mantle Discontinuity. Science, 2003, 300, 789-791.	6.0	483
3	Electronic Transitions in Perovskite: Possible Nonconvecting Layers in the Lower Mantle. Science, 2004, 305, 383-386.	6.0	354
4	A seismologically consistent compositional model of Earthâ€™s core. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 7542-7545.	3.3	263
5	X-ray Imaging of Stress and Strain of Diamond, Iron, and Tungsten at Megabar Pressures. Science, 1997, 276, 1242-1245.	6.0	237
6	Effect of light elements on the sound velocities in solid iron: Implications for the composition of Earth's core. Earth and Planetary Science Letters, 2007, 254, 233-238.	1.8	222
7	Terrestrial Accretion Under Oxidizing Conditions. Science, 2013, 339, 1194-1197.	6.0	180
8	Pressure-Induced High-Spin to Low-Spin Transition in FeS Evidenced by X-Ray Emission Spectroscopy. Physical Review Letters, 1999, 82, 3284-3287.	2.9	178
9	Magnetism in FeO at Megabar Pressures from X-Ray Emission Spectroscopy. Physical Review Letters, 1999, 83, 4101-4104.	2.9	175
10	Sound Velocities in Iron to 110 Gigapascals. Science, 2001, 291, 468-471.	6.0	151
11	Core formation and core composition from coupled geochemical and geophysical constraints. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 12310-12314.	3.3	138
12	Copper isotope evidence for large-scale sulphide fractionation during Earthâ€™s differentiation. Geochemical Perspectives Letters, 2015, , 53-64.	1.0	134
13	Metalâ€“silicate partitioning of Ni and Co in a deep magma ocean. Earth and Planetary Science Letters, 2012, 321-322, 189-197.	1.8	130
14	Composition of the Earth's inner core from high-pressure sound velocity measurements in Feâ€“Niâ€“Si alloys. Earth and Planetary Science Letters, 2010, 295, 292-296.	1.8	128
15	An early geodynamo driven by exsolution of mantle components from Earthâ€™s core. Nature, 2016, 536, 326-328.	13.7	128
16	Elastic anisotropy in textured hcp-iron to 112 GPa from sound wave propagation measurements. Earth and Planetary Science Letters, 2004, 225, 243-251.	1.8	120
17	Experimental Evidence for a High-Pressure Isostructural Phase Transition in Osmium. Physical Review Letters, 2004, 93, 095502.	2.9	119
18	Spin Crossover in Ferropericlase at High Pressure: A Seismologically Transparent Transition?. Science, 2011, 331, 64-67.	6.0	118

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19	Element partitioning between magnesium silicate perovskite and ferropericlase: New insights into bulk lower-mantle geochemistry. Earth and Planetary Science Letters, 2008, 269, 164-174.	1.8	111
20	Nature of the High-Pressure Transition inFe2O3Hematite. Physical Review Letters, 2002, 89, 205504.	2.9	108
21	High-pressure behavior in Î±-AlPO4: Amorphization and the memory-glass effect. Physical Review B, 1995, 51, 11262-11269.	1.1	102
22	Oxygen and silicon contents of Earth's core from high pressure metalâ€“silicate partitioning experiments. Earth and Planetary Science Letters, 2011, 310, 409-421.	1.8	91
23	Deformation of (Mg0.9,Fe0.1)SiO3 Perovskite aggregates up to 32 GPa. Earth and Planetary Science Letters, 2003, 209, 351-360.	1.8	88
24	Silicon isotopes in angrites and volatile loss in planetesimals. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 17029-17032.	3.3	86
25	Numerical Simulation ofÎ±-Quartz under Nonhydrostatic Compression: Memory Glass and Five-Coordinated Crystalline Phases. Physical Review Letters, 1996, 76, 772-775.	2.9	74
26	Sound velocity in iron carbide (Fe3C) at high pressure: Implications for the carbon content of the Earth's inner core. Physics of the Earth and Planetary Interiors, 2009, 172, 125-129.	0.7	73
27	Thermodynamic properties and isotopic fractionation of calcite from vibrational spectroscopy of 18O-substituted calcite. Geochimica Et Cosmochimica Acta, 1996, 60, 3471-3485.	1.6	71
28	Low argon solubility in silicate melts at high pressure. Nature, 1998, 393, 352-355.	13.7	69
29	Redox state of Earthâ€™s magma ocean and its Venus-like early atmosphere. Science Advances, 2020, 6, .	4.7	69
30	Theoretical study of a five-coordinated silica polymorph. Physical Review B, 1997, 56, 5797-5806.	1.1	68
31	Aggregate and single-crystalline elasticity of hcp cobalt at high pressure. Physical Review B, 2005, 72, .	1.1	59
32	Elasticity of Cobalt at High Pressure Studied by Inelastic X-Ray Scattering. Physical Review Letters, 2004, 93, 215505.	2.9	56
33	A large planetary body inferred from diamond inclusions in a ureilite meteorite. Nature Communications, 2018, 9, 1327.	5.8	56
34	Spin Transitions in Mantle Minerals. Annual Review of Earth and Planetary Sciences, 2014, 42, 231-248.	4.6	54
35	Composition of the low seismic velocity Eâ€² layer at the top of Earth's core. Geophysical Research Letters, 2017, 44, 8303-8310.	1.5	53
36	Redox state during core formation on asteroid 4-Vesta. Earth and Planetary Science Letters, 2013, 373, 75-82.	1.8	50

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37	Carbonate stability in the reduced lower mantle. Earth and Planetary Science Letters, 2018, 489, 84-91.	1.8	50
38	Magnesium Partitioning Between Earth's Mantle and Core and its Potential to Drive an Early Exsolution Geodynamo. Geophysical Research Letters, 2018, 45, 13,240.	1.5	50
39	Oxygen as a light element: A solution to single-stage core formation. Earth and Planetary Science Letters, 2009, 288, 108-114.	1.8	48
40	Effect of composition, structure, and spin state on the thermal conductivity of the Earth's lower mantle. Physics of the Earth and Planetary Interiors, 2010, 180, 148-153.	0.7	48
41	A Strong to Fragile Transition in a Model of Liquid Silica. Molecular Simulation, 1997, 20, 17-25.	0.9	47
42	Electronic properties of transition-metal oxides under high pressure revealed by x-ray emission spectroscopy. Journal of Physics Condensed Matter, 2005, 17, S717-S726.	0.7	47
43	Metal-Ligand Interplay in Strongly Correlated Oxides: A Parametrized Phase Diagram for Pressure-Induced Spin Transitions. Physical Review Letters, 2007, 98, 196404.	2.9	47
44	Spin and valence dependence of iron partitioning in Earthâ€™s deep mantle. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 11127-11130.	3.3	45
45	Application of inelastic X-ray scattering to the measurements of acoustic wave velocities in geophysical materials at very high pressure. Physics of the Earth and Planetary Interiors, 2004, 143-144, 5-18.	0.7	43
46	The solubility of heat-producing elements in Earthâ€™s core. Geochemical Perspectives Letters, 0, , 1-5.	1.0	43
47	Charge transfer at very high pressure in NiO. Physical Review B, 2003, 67, .	1.1	40
48	Strength, anisotropy, and preferred orientation of solid argon at high pressures. Journal of Physics Condensed Matter, 2006, 18, S963-S968.	0.7	40
49	Lattice Dynamics of Molybdenum at High Pressure. Physical Review Letters, 2006, 96, 115502.	2.9	38
50	Chondritic Mn/Na ratio and limited post-nebular volatile loss of the Earth. Earth and Planetary Science Letters, 2018, 485, 130-139.	1.8	36
51	Melting and pressure-induced amorphization of quartz. Europhysics Letters, 1998, 42, 643-648.	0.7	35
52	Experimental determination of Zn isotope fractionation during evaporative loss at extreme temperatures. Geochimica Et Cosmochimica Acta, 2019, 259, 391-411.	1.6	34
53	Anomalous pressure evolution of the axial ratio câˆ•a in hcp cobalt: Interplay between structure, magnetism, and lattice dynamics. Applied Physics Letters, 2008, 92, .	1.5	31
54	Composition of the core from gallium metalâ€“silicate partitioning experiments. Earth and Planetary Science Letters, 2015, 427, 191-201.	1.8	28

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55	Ab Initio Molecular Dynamics Investigation of Molten Feâ€“Siâ€“O in Earth's Core. Geophysical Research Letters, 2019, 46, 6397-6405.	1.5	27
56	Chemical imaging with NanoSIMS: A window into deep-Earth geochemistry. Earth and Planetary Science Letters, 2007, 262, 543-551.	1.8	26
57	On the high-pressure phase transition in. European Physical Journal B, 1998, 1, 265-268.	0.6	22
58	Constraining compositional proxies for Earthâ€™s accretion and core formation through high pressure and high temperature Zn and S metal-silicate partitioning. Geochimica Et Cosmochimica Acta, 2018, 235, 21-40.	1.6	22
59	Seconds after impact: Insights into the thermal history of impact ejecta from diffusion between lechatelierite and host glass in tektites and experiments. Geochimica Et Cosmochimica Acta, 2018, 241, 69-94.	1.6	20
60	A New Reference for the Thermal Equation of State of Iron. Minerals (Basel, Switzerland), 2020, 10, 100.	0.8	20
61	The Earth's Lower Mantle and Core. Elements, 2008, 4, 177-182.	0.5	19
62	Thermal conductivity near the bottom of the Earth's lower mantle: Measurements of pyrolite up to 120 GPa and 2500 K. Earth and Planetary Science Letters, 2020, 536, 116161.	1.8	18
63	A combined XAS and XRD study of the high-pressure behaviour of GaAsO 4 berlinite. Europhysics Letters, 1997, 40, 533-538.	0.7	17
64	Spin state transition and partitioning of iron: Effects on mantle dynamics. Earth and Planetary Science Letters, 2015, 417, 57-66.	1.8	16
65	Composition dependence of spin transition in (Mg,Fe)SiO‹sub›3‹/sub›bridgmanite. American Mineralogist, 2015, 100, 2246-2253.	0.9	16
66	Thermochemical state of the lower mantle: New insights from mineral physics. Geophysical Monograph Series, 2005, , 241-260.	0.1	15
67	Blocked radiative heat transport in the hot pyrolitic lower mantle. Earth and Planetary Science Letters, 2020, 537, 116176.	1.8	15
68	Investigating Earth's Formation History Through Copper and Sulfur Metalâ€Silicate Partitioning During Coreâ€Mantle Differentiation. Journal of Geophysical Research: Solid Earth, 2018, 123, 8349-8363.	1.4	14
69	High pressure partitioning behavior of Mo and W and late sulfur delivery during Earthâ€™s core formation. Geochimica Et Cosmochimica Acta, 2021, 310, 19-31.	1.6	14
70	Constraining the behavior of gallium isotopes during evaporation at extreme temperatures. Geochimica Et Cosmochimica Acta, 2020, 286, 54-71.	1.6	13
71	Reversal of carbonate-silicate cation exchange in cold slabs in Earthâ€™s lower mantle. Nature Communications, 2021, 12, 1712.	5.8	13
72	Partitioning of Si and platinum group elements between liquid and solid Feâ€“Si alloys. Geochimica Et Cosmochimica Acta, 2014, 132, 94-100.	1.6	12

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73	Investigating Magma Ocean Solidification on Earth Through Laserâ€Heated Diamond Anvil Cell Experiments. Geophysical Research Letters, 2021, 48, e2021GL092446.	1.5	12
74	Geochemical Constraints on the Size of the Moonâ€Forming Giant Impact. Geophysical Research Letters, 2017, 44, 11,770.	1.5	10
75	Fe-Ni ideality during core formation on Earth. American Mineralogist, 2018, 103, 1707-1710.	0.9	9
76	The niobium and tantalum concentration in the mantle constrains the composition of Earthâ€™s primordial magma ocean. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 27893-27898.	3.3	8
77	Constraints on the composition and temperature of LLSVPs from seismic properties of lower mantle minerals. Earth and Planetary Science Letters, 2021, 554, 116685.	1.8	7
78	Contrasting opacity of bridgmanite and ferropericlase in the lowermost mantle: Implications to radiative and electrical conductivity. Earth and Planetary Science Letters, 2021, 562, 116871.	1.8	7
79	Publisher's Note: Experimental Evidence for a High-Pressure Isostructural Phase Transition in Osmium [Phys. Rev. Lett.93, 095502 (2004)]. Physical Review Letters, 2004, 93, .	2.9	6
80	Determination of Phonon Dispersion Curves at Gigapascal Pressures by Inelastic X-ray Scattering. High Pressure Research, 2002, 22, 73-77.	0.4	5
81	Low Velocity Zones in the Martian Upper Mantle Highlighted by Sound Velocity Measurements. Geophysical Research Letters, 2021, 48, e2021GL093977.	1.5	4
82	Composition and Pressure Effects on Partitioning of Ferrous Iron in Iron-Rich Lower Mantle Heterogeneities. Minerals (Basel, Switzerland), 2021, 11, 512.	0.8	3
83	XAS Study of the High Pressure Behaviour of Quartz-Like Compounds. European Physical Journal Special Topics, 1997, 7, C2-987-C2-989.	0.2	3
84	Electron Energy Loss Near Edge Structures as a Tool to Elucidate Natural and Artificial Minerals Structures. Microscopy and Microanalysis, 2017, 23, 2154-2155.	0.2	1
85	Acceptance of the 2006 Houtermans award. Geochimica Et Cosmochimica Acta, 2007, 71, S28-S29.	1.6	0
86	Acceptance of the Mineralogical Society of America Award for 2008. American Mineralogist, 2009, 94, 643-643.	0.9	0
87	STEM EDS/EELS for Phase Analysis of Deep-Mantle Rock Assemblages Supported by Machine Learning. Microscopy and Microanalysis, 2019, 25, 2474-2475.	0.2	0
88	Reply to Comment by Jennings et al. on â€œInvestigating Earth's Formation History Through Copper and Sulfur Metalâ€Silicate Partitioning During Coreâ€Mantle Differentiationâ€• Journal of Geophysical Research: Solid Earth, 2019, 124, 12845-12853.	1.4	0
89	Experimental investigation of elemental and isotopic evaporation processes by laser heating in an aerodynamic levitation furnace. Comptes Rendus - Geoscience, 2021, 353, 101-114.	0.4	0