James Badro

List of Publications by Year in Descending Order

96 papers	5,260 citations	39 h-index	71 g-index
103 ext. papers	5,844 ext. citations	7.8 avg, IF	5.5 L-index

#	Paper	IF	Citations
96	Reversal of carbonate-silicate cation exchange in cold slabs in Earth's lower mantle. *Nature Communications*, **2021**, 12, 1712	17.4	4
95	Experimental investigation of elemental and isotopic evaporation processes by laser heating in an aerodynamic levitation furnace. *Comptes Rendus - Geoscience*, **2021**, 353, 101-114	1.4	
94	Composition and Pressure Effects on Partitioning of Ferrous Iron in Iron-Rich Lower Mantle Heterogeneities. *Minerals (Basel, Switzerland)*, **2021**, 11, 512	2.4	1
93	Contrasting opacity of bridgmanite and ferropericlase in the lowermost mantle: Implications to radiative and electrical conductivity. *Earth and Planetary Science Letters*, **2021**, 562, 116871	5.3	6
92	Investigating Magma Ocean Solidification on Earth Through Laser-Heated Diamond Anvil Cell Experiments. *Geophysical Research Letters*, **2021**, 48, e2021GL092446	4.9	2
91	Constraints on the composition and temperature of LLSVPs from seismic properties of lower mantle minerals. *Earth and Planetary Science Letters*, **2021**, 554, 116685	5.3	2
90	Low Velocity Zones in the Martian Upper Mantle Highlighted by Sound Velocity Measurements. *Geophysical Research Letters*, **2021**, 48, e2021GL093977	4.9	2
89	High pressure partitioning behavior of Mo and W and late sulfur delivery during Earth's core formation. *Geochimica Et Cosmochimica Acta*, **2021**, 310, 19-31	5.5	4
88	Blocked radiative heat transport in the hot pyrolitic lower mantle. *Earth and Planetary Science Letters*, **2020**, 537, 116176	5.3	9
87	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	5.3	12
86	A New Reference for the Thermal Equation of State of Iron. *Minerals (Basel, Switzerland)*, **2020**, 10, 100	2.4	6
85	Constraining the behavior of gallium isotopes during evaporation at extreme temperatures. *Geochimica Et Cosmochimica Acta*, **2020**, 286, 54-71	5.5	7
84	Redox state of Earth's magma ocean and its Venus-like early atmosphere. *Science Advances*, **2020**, 6,	14.3	25
83	The niobium and tantalum concentration in the mantle constrains the composition of Earth's primordial magma ocean. *Proceedings of the National Academy of Sciences of the United States of America*, **2020**, 117, 27893-27898	11.5	3
82	Experimental determination of Zn isotope fractionation during evaporative loss at extreme temperatures. *Geochimica Et Cosmochimica Acta*, **2019**, 259, 391-411	5.5	23
81	Ab Initio Molecular Dynamics Investigation of Molten Fe_3Si in Earth's Core. *Geophysical Research Letters*, **2019**, 46, 6397-6405	4.9	19
80	STEM EDS/EELS for Phase Analysis of Deep-Mantle Rock Assemblages Supported by Machine Learning. *Microscopy and Microanalysis*, **2019**, 25, 2474-2475	0.5	

79	Reply to Comment by Jennings et al. on "Investigating Earth's Formation History Through Copper and Sulfur Metal-Silicate Partitioning During Core-Mantle Differentiation" *Journal of Geophysical Research: Solid Earth*, **2019**, 124, 12845-12853	3.6	
78	A large planetary body inferred from diamond inclusions in a ureilite meteorite. *Nature Communications*, **2018**, 9, 1327	17.4	39
77	Chondritic Mn/Na ratio and limited post-nebular volatile loss of the Earth. *Earth and Planetary Science Letters*, **2018**, 485, 130-139	5.3	25
76	Carbonate stability in the reduced lower mantle. *Earth and Planetary Science Letters*, **2018**, 489, 84-91	5.3	31
75	Constraining compositional proxies for Earth'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	5.5	14
74	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	5.5	15
73	Fe-Ni ideality during core formation on Earth. *American Mineralogist*, **2018**, 103, 1707-1710	2.9	5
72	Magnesium Partitioning Between Earth's Mantle and Core and its Potential to Drive an Early Exsolution Geodynamo. *Geophysical Research Letters*, **2018**, 45, 13,240	4.9	34
71	Investigating Earth's Formation History Through Copper and Sulfur Metal-Silicate Partitioning During Core-Mantle Differentiation. *Journal of Geophysical Research: Solid Earth*, **2018**, 123, 8349-8363	3.6	9
70	Electron Energy Loss Near Edge Structures as a Tool to Elucidate Natural and Artificial Minerals Structures. *Microscopy and Microanalysis*, **2017**, 23, 2154-2155	0.5	1
69	Composition of the low seismic velocity E? layer at the top of Earth's core. *Geophysical Research Letters*, **2017**, 44, 8303-8310	4.9	39
68	Geochemical Constraints on the Size of the Moon-Forming Giant Impact. *Geophysical Research Letters*, **2017**, 44, 11,770-11,777	4.9	8
67	Spin and valence dependence of iron partitioning in Earth's deep mantle. *Proceedings of the National Academy of Sciences of the United States of America*, **2016**, 113, 11127-11130	11.5	35
66	An early geodynamo driven by exsolution of mantle components from Earth's core. *Nature*, **2016**, 536, 326-8	50.4	100
65	Valence state analysis on iron in minerals of Earth's lowermost mantle by electron energy loss spectroscopy **2016**, 1196-1196		
64	3D analytical investigation of melting at lower mantle conditions in the laser-heated diamond anvil cell **2016**, 1180-1181		
63	Spin state transition and partitioning of iron: Effects on mantle dynamics. *Earth and Planetary Science Letters*, **2015**, 417, 57-66	5.3	14
62	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, 12310-4	11.5	94

61	Composition dependence of spin transition in (Mg,Fe)SiO3 bridgmanite. *American Mineralogist*, **2015**, 100, 2246-2253	2.9	12
60	The Earth's Building Blocks. *Geophysical Monograph Series*, **2015**, 27-47	1.1	5
59	Earth and Terrestrial Planet Formation. *Geophysical Monograph Series*, **2015**, 49-70	1.1	17
58	Late Accretion and the Late Veneer. *Geophysical Monograph Series*, **2015**, 71-82	1.1	14
57	Early Differentiation and Core Formation. *Geophysical Monograph Series*, **2015**, 83-102	1.1	11
56	An Experimental Geochemistry Perspective on Earth's Core Formation. *Geophysical Monograph Series*, **2015**, 103-121	1.1	1
55	Fractional Melting and Freezing in the Deep Mantle and Implications for the Formation of a Basal Magma Ocean. *Geophysical Monograph Series*, **2015**, 123-142	1.1	10
54	Early Differentiation and Its Long-Term Consequences for Earth Evolution. *Geophysical Monograph Series*, **2015**, 143-172	1.1	7
53	Composition of the core from gallium metal–silicate partitioning experiments. *Earth and Planetary Science Letters*, **2015**, 427, 191-201	5.3	22
52	Copper isotope evidence for large-scale sulphide fractionation during Earth's differentiation. *Geochemical Perspectives Letters*, **2015**, 53-64	3	93
51	Partitioning of Si and platinum group elements between liquid and solid Fe–Si alloys. *Geochimica Et Cosmochimica Acta*, **2014**, 132, 94-100	5.5	8
50	Spin Transitions in Mantle Minerals. *Annual Review of Earth and Planetary Sciences*, **2014**, 42, 231-248	15.3	41
49	Silicon isotopes in angrites and volatile loss in planetesimals. *Proceedings of the National Academy of Sciences of the United States of America*, **2014**, 111, 17029-32	11.5	66
48	A seismologically consistent compositional model of Earth's core. *Proceedings of the National Academy of Sciences of the United States of America*, **2014**, 111, 7542-5	11.5	167
47	Terrestrial accretion under oxidizing conditions. *Science*, **2013**, 339, 1194-7	33.3	150
46	Redox state during core formation on asteroid 4-Vesta. *Earth and Planetary Science Letters*, **2013**, 373, 75-82	5.3	43
45	Metal–silicate partitioning of Ni and Co in a deep magma ocean. *Earth and Planetary Science Letters*, **2012**, 321-322, 189-197	5.3	100
44	Oxygen and silicon contents of Earth's core from high pressure metal–silicate partitioning experiments. *Earth and Planetary Science Letters*, **2011**, 310, 409-421	5.3	74

43	Spin crossover in ferropericlase at high pressure: a seismologically transparent transition?. *Science*, **2011**, 331, 64-7	33.3	102
42	Composition of the Earth's inner core from high-pressure sound velocity measurements in Fe□Ni□Si alloys. *Earth and Planetary Science Letters*, **2010**, 295, 292-296	5.3	109
41	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	2.3	44
40	Oxygen as a light element: A solution to single-stage core formation. *Earth and Planetary Science Letters*, **2009**, 288, 108-114	5.3	43
39	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	2.3	61
38	Element partitioning between magnesium silicate perovskite and ferropericlase: New insights into bulk lower-mantle geochemistry. *Earth and Planetary Science Letters*, **2008**, 269, 164-174	5.3	107
37	Anomalous pressure evolution of the axial ratio c□ in hcp cobalt: Interplay between structure, magnetism, and lattice dynamics. *Applied Physics Letters*, **2008**, 92, 111911	3.4	25
36	The Earth's Lower Mantle and Core. *Elements*, **2008**, 4, 177-182	3.8	17
35	Metal-ligand interplay in strongly correlated oxides: a parametrized phase diagram for pressure-induced spin transitions. *Physical Review Letters*, **2007**, 98, 196404	7.4	34
34	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	5.3	193
33	Chemical imaging with NanoSIMS: A window into deep-Earth geochemistry. *Earth and Planetary Science Letters*, **2007**, 262, 543-551	5.3	21
32	Strength, anisotropy, and preferred orientation of solid argon at high pressures. *Journal of Physics Condensed Matter*, **2006**, 18, S963-8	1.8	35
31	Lattice dynamics of molybdenum at high pressure. *Physical Review Letters*, **2006**, 96, 115502	7.4	31
30	Thermochemical State of the Lower Mantle: New Insights from Mineral Physics. *Geophysical Monograph Series*, **2005**, 241-260	1.1	12
29	Electronic properties of transition-metal oxides under high pressure revealed by x-ray emission spectroscopy. *Journal of Physics Condensed Matter*, **2005**, 17, S717-S726	1.8	43
28	Aggregate and single-crystalline elasticity of hcp cobalt at high pressure. *Physical Review B*, **2005**, 72,	3.3	57
27	Elasticity of cobalt at high pressure studied by inelastic x-ray scattering. *Physical Review Letters*, **2004**, 93, 215505	7.4	51
26	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,	7.4	6

25	Electronic transitions in perovskite: possible nonconvecting layers in the lower mantle. *Science*, **2004**, 305, 383-6	33.3	325
24	Synthesis and characterization of a binary noble metal nitride. *Nature Materials*, **2004**, 3, 294-7	27	464
23	Experimental evidence for a high-pressure isostructural phase transition in osmium. *Physical Review Letters*, **2004**, 93, 095502	7.4	111
22	Elastic anisotropy in textured hcp-iron to 112 GPa from sound wave propagation measurements. *Earth and Planetary Science Letters*, **2004**, 225, 243-251	5.3	104
21	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	2.3	38
20	Iron partitioning in Earth's mantle: toward a deep lower mantle discontinuity. *Science*, **2003**, 300, 789-91	33.3	422
19	Deformation of (Mg0.9,Fe0.1)SiO3 Perovskite aggregates up to 32 GPa. *Earth and Planetary Science Letters*, **2003**, 209, 351-360	5.3	82
18	Charge transfer at very high pressure in NiO. *Physical Review B*, **2003**, 67,	3.3	36
17	Nature of the high-pressure transition in Fe2O3 hematite. *Physical Review Letters*, **2002**, 89, 205504	7.4	90
16	Determination of Phonon Dispersion Curves at Gigapascal Pressures by Inelastic X-ray Scattering. *High Pressure Research*, **2002**, 22, 73-77	1.6	5
15	Sound velocities in iron to 110 gigapascals. *Science*, **2001**, 291, 468-71	33.3	134
14	Magnetism in FeO at Megabar Pressures from X-Ray Emission Spectroscopy. *Physical Review Letters* , **1999**, 83, 4101-4104	7.4	157
13	Pressure-Induced High-Spin to Low-Spin Transition in FeS Evidenced by X-Ray Emission Spectroscopy. *Physical Review Letters*, **1999**, 82, 3284-3287	7.4	160
12	Low argon solubility in silicate melts at high pressure. *Nature*, **1998**, 393, 352-355	50.4	61
11	On the high-pressure phase transition in. *European Physical Journal B*, **1998**, 1, 265-268	1.2	21
10	Melting and pressure-induced amorphization of quartz. *Europhysics Letters*, **1998**, 42, 643-648	1.6	33
9	A combined XAS and XRD study of the high-pressure behaviour of GaAsO 4 berlinite. *Europhysics Letters*, **1997**, 40, 533-538	1.6	16
8	Theoretical study of a five-coordinated silica polymorph. *Physical Review B*, **1997**, 56, 5797-5806	3.3	56

7	A Strong to Fragile Transition in a Model of Liquid Silica. *Molecular Simulation*, **1997**, 20, 17-25	2	45
6	X-ray Imaging of Stress and Strain of Diamond, Iron, and Tungsten at Megabar Pressures. *Science*, **1997**, 276, 1242-1245	33.3	211
5	XAS Study of the High Pressure Behaviour of Quartz-Like Compounds. *European Physical Journal Special Topics*, **1997**, 7, C2-987-C2-989		3
4	Thermodynamic properties and isotopic fractionation of calcite from vibrational spectroscopy of 18O-substituted calcite. *Geochimica Et Cosmochimica Acta*, **1996**, 60, 3471-3485	5.5	62
3	Numerical simulation of alpha -quartz under nonhydrostatic compression: Memory glass and five-coordinated crystalline phases. *Physical Review Letters*, **1996**, 76, 772-775	7.4	70
2	High-pressure behavior in alpha -AlPO4: Amorphization and the memory-glass effect. *Physical Review B*, **1995**, 51, 11262-11269	3.3	90
1	The solubility of heat-producing elements in Earth□s core. *Geochemical Perspectives Letters*,1-5	3	37