Kevin Righter

List of Publications by Year
in descending order

127 papers	6,959 citations	50276 46 h-index	64796 79 g-index
136 all docs	136 docs citations	136 times ranked	4520 citing authors

#	Article	IF	Citations
1	OSIRIS-REx: Sample Return from Asteroid (101955) Bennu. Space Science Reviews, 2017, 212, 925-984.	8.1	426
2	Determining the composition of the Earth. Nature, 2002, 416, 39-44.	27.8	401
3	Mechanisms of metalâ€“silicate equilibration in the terrestrial magma ocean. Earth and Planetary Science Letters, 2003, 205, 239-255.	4.4	293
4	A magma ocean on Vesta: Core formation and petrogenesis of eucrites and diogenites. Meteoritics and Planetary Science, 1997, 32, 929-944.	1.6	275
5	Partitioning of Ru, Rh, Pd, Re, Ir, and Au between Cr-bearing spinel, olivine, pyroxene and silicate melts. Geochimica Et Cosmochimica Acta, 2004, 68, 867-880.	3.9	256
6	Prediction of siderophile element metal-silicate partition coefficients to 20 GPa and 2800Â°C: the effects of pressure, temperature, oxygen fugacity, and silicate and metallic melt compositions. Physics of the Earth and Planetary Interiors, 1997, 100, 115-134.	1.9	232
7	Core Formation in Earth's Moon, Mars, and Vesta. Icarus, 1996, 124, 513-529.	2.5	194
8	Metal-silicate equilibrium in a homogeneously accreting earth: new results for Re. Earth and Planetary Science Letters, 1997, 146, 541-553.	4.4	158
9	Effect of water on metal-silicate partitioning of siderophile elements: a high pressure and temperature terrestrial magma ocean and core formation. Earth and Planetary Science Letters, 1999, 171, 383-399.	4.4	146
10	METAL-SILICATEPARTITIONING OFSIDEROPHILEELEMENTS ANDCOREFORMATION IN THEEARLYEARTH. Annual Review of Earth and Planetary Sciences, 2003, 31, 135-174.	11.0	137
11	High pressure effects on the ironâ€“iron oxide and nickelâ€“nickel oxide oxygen fugacity buffers. Earth and Planetary Science Letters, 2009, 286, 556-564.	4.4	135
12	Phase equilibria of phlogopite lamprophyres from western Mexico: biotite-liquid equilibria and P - T estimates for biotite-bearing igneous rocks. Contributions To Mineralogy and Petrology, 1996, 123, 1-21.	3.1	121
13	Partitioning of Ni, Co and V between spinel-structured oxides and silicate melts: Importance of spinel composition. Chemical Geology, 2006, 227, 1-25.	3.3	118
14	Compatibility of Rhenium in Garnet During Mantle Melting and Magma Genesis. Science, 1998, 280, 1737-1741.	12.6	113
15	Water in the Early Earth. , 2000, , 413-434.		113
16	Partitioning of palladium at high pressures and temperatures during core formation. Nature Geoscience, 2008, 1, 321-323.	12.9	111
17	Prediction of metalâ€“silicate partition coefficients for siderophile elements: An update and assessment of PT conditions for metalâ€“silicate equilibrium during accretion of the Earth. Earth and Planetary Science Letters, 2011, 304, 158-167.	4.4	108
18	Magmatic fractionation of Hf and W: constraints on the timing of core formation and differentiation in the Moon and Mars. Geochimica Et Cosmochimica Acta, 2003, 67, 2497-2507.	3.9	102

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19	The effect of dissolved water on the oxidation state of iron in natural silicate liquids. Contributions To Mineralogy and Petrology, 1995, 120, 170-179.	3.1	100
20	The Meteoritical Bulletin, No. 90, 2006 September. Meteoritics and Planetary Science, 2006, 41, 1383-1418.	1.6	93
21	Partitioning of Mo, P and other siderophile elements (Cu, Ga, Sn, Ni, Co, Cr, Mn, V, and W) between metal and silicate melt as a function of temperature and silicate melt composition. Earth and Planetary Science Letters, 2010, 291, 1-9.	4.4	88
22	An experimental study of the oxidation state of vanadium in spinel and basaltic melt with implications for the origin of planetary basalt. American Mineralogist, 2006, 91, 1643-1656.	1.9	85
23	Source contamination versus assimilation: an example from the Trans-Mexican Volcanic Arc. Earth and Planetary Science Letters, 2002, 195, 211-221.	4.4	84
24	Metal/silicate equilibrium in the early Earthâ€"New constraints from the volatile moderately siderophile elements Ga, Cu, P, and Sn. Geochimica Et Cosmochimica Acta, 2000, 64, 3581-3597.	3.9	82
25	Oxygen fugacity in the Martian mantle controlled by carbon: New constraints from the nakhlite MIL 03346. Meteoritics and Planetary Science, 2008, 43, 1709-1723.	1.6	81
26	Large-scale mantle metasomatism: a Reâ€"Os perspective. Earth and Planetary Science Letters, 2004, 219, 49-60.	4.4	78
27	Experimental evidence for sulfur-rich martian magmas: Implications for volcanism and surficial sulfur sources. Earth and Planetary Science Letters, 2009, 288, 235-243.	4.4	77
28	Pliocene-Quaternary volcanism and faulting at the intersection of the Gulf of California and the Mexican Volcanic Belt. Bulletin of the Geological Society of America, 1995, 107, 612.	3.3	75
29	Does the Moon Have a Metallic Core? Constraints from Giant Impact Modeling and Siderophile Elements. Icarus, 2002, 158, 1-13.	2.5	75
30	Moderately and slightly siderophile element constraints on the depth and extent of melting in early Mars. Meteoritics and Planetary Science, 2011, 46, 157-176.	1.6	69
31	Melting of the Indarch meteorite (EH4 chondrite) at 1GPa and variable oxygen fugacity: Implications for early planetary differentiation processes. Geochimica Et Cosmochimica Acta, 2009, 73, 6402-6420.	3.9	64
32	Flux of carbonate melt from deeply subducted pelitic sediments: Geophysical and geochemical implications for the source of Central American volcanic arc. Geophysical Research Letters, 2012, 39, .	4.0	62
33	Hawaiites and related lavas in the Atenguillo graben, western Mexican Volcanic Belt. Bulletin of the Geological Society of America, 1992, 104, 1592-1607.	3.3	56
34	Redox variations in the inner solar system with new constraints from vanadium XANES in spinels. American Mineralogist, 2016, 101, 1928-1942.	1.9	56
35	Accretion and core formation on Mars: molybdenum contents of melt inclusion glasses in three SNC meteorites. Geochimica Et Cosmochimica Acta, 1998, 62, 2167-2177.	3.9	55
36	Oxy-substitution and dehydrogenation in mantle-derived amphibole megacrysts. Geochimica Et Cosmochimica Acta, 1999, 63, 3635-3651.	3.9	55

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37	How Mercury can be the most reduced terrestrial planet and still store iron in its mantle. Earth and Planetary Science Letters, 2014, 394, 186-197.	4.4	54
38	A comparison of basaltic volcanism in the Cascades and western Mexico: compositional diversity in continental arcs. Tectonophysics, 2000, 318, 99-117.	2.2	52
39	The Meteoritical Bulletin, No. 93, 2008 March. Meteoritics and Planetary Science, 2008, 43, 571-632.	1.6	52
40	Correlations of octahedral cations with OH^{âˆ’}, O^{2âˆ’}, Cl^{âˆ’}, and F^{âˆ’}in biotite from volcanic rocks and xenoliths. American Mineralogist, 2002, 87, 142-153.	1.9	51
41	3. The Constitution and Structure of the Lunar Interior. , 2006, , 221-364.		51
42	Siderophile and chalcophile element abundances in shergottites: Implications for Martian core formation. Meteoritics and Planetary Science, 2015, 50, 691-714.	1.6	51
43	Early accretion of water and volatile elements to the inner Solar System: evidence from angrites. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2017, 375, 20160209.	3.4	51
44	Temperature and oxygen fugacity constraints on CK and R chondrites and implications for water and oxidation in the early solar system. Polar Science, 2007, 1, 25-44.	1.2	50
45	Radar properties of comets: Parametric dielectric modeling of Comet 67P/Churyumovâ€“Gerasimenko. Icarus, 2012, 221, 925-939.	2.5	50
46	OSIRIS-REx Contamination Control Strategy and Implementation. Space Science Reviews, 2018, 214, 1.	8.1	50
47	Advanced Curation of Astromaterials for Planetary Science. Space Science Reviews, 2019, 215, 1.	8.1	50
48	Compositional Relationships Between Meteorites and Terrestrial Planets. , 2006, , 803-828.		50
49	Mineralogy, petrology, chronology, and exposure history of the Chelyabinsk meteorite and parent body. Meteoritics and Planetary Science, 2015, 50, 1790-1819.	1.6	48
50	Metalâ€“silicate partitioning of U: Implications for the heat budget of the core and evidence for reduced U in the mantle. Geochimica Et Cosmochimica Acta, 2017, 199, 1-12.	3.9	47
51	Alkaline Lavas in the Volcanic Front of the Western Mexican Volcanic Belt: Geology and Petrology of the Ayutla and Tapalpa Volcanic Fields. Journal of Petrology, 2001, 42, 2333-2361.	2.8	46
52	The Meteoritical Bulletin, No. 92, 2007 September. Meteoritics and Planetary Science, 2007, 42, 1647-1694.	1.6	45
53	Highly siderophile element (<scp>HSE</scp>) abundances in the mantle of Mars are due to core formation at high pressure and temperature. Meteoritics and Planetary Science, 2015, 50, 604-631.	1.6	45
54	Experimental determination of the metal/silicate partition coefficient of Germanium: Implications for core and mantle differentiation. Earth and Planetary Science Letters, 2011, 304, 379-388.	4.4	42

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55	Behavior of Re during Magma Fractionation: an Example from Volcan Alcedo, Galapagos. Journal of Petrology, 1998, 39, 785-795.	2.8	41
56	Behavior of tungsten and hafnium in silicates: A crystal chemical basis for understanding the early evolution of the terrestrial planets. Geophysical Research Letters, 2003, 30, 7-1-7-4.	4.0	41
57	The Meteoritical Bulletin, No. 95. Meteoritics and Planetary Science, 2009, 44, 429-462.	1.6	40
58	Re and Os concentrations in arc basalts: The roles of volatility and source region fO2 variations. Geochimica Et Cosmochimica Acta, 2008, 72, 926-947.	3.9	39
59	Volcanism and tectonism in western Mexico: A contrast of style and substance. Geology, 1992, 20, 625.	4.4	38
60	Mineralogy and petrology of the LaPaz Icefield lunar mare basaltic meteorites. Meteoritics and Planetary Science, 2005, 40, 1703-1722.	1.6	38
61	Diffusion of trace elements in FeNi metal: Application to zoned metal grains in chondrites. Geochimica Et Cosmochimica Acta, 2005, 69, 3145-3158.	3.9	38
62	Petrology of unique achondrite Queen Alexandra Range 93148: A piece of the pallasite (howarditeâ€eucriteâ€diogenite?) parent body?. Meteoritics and Planetary Science, 2000, 35, 521-535.	1.6	35
63	The age and composition of the pre-Cenozoic basement of the Jalisco Block: implications for and relation to the Guerrero composite terrane. Contributions To Mineralogy and Petrology, 2013, 166, 801-824.	3.1	35
64	Redox systematics of martian magmas with implications for magnetite stability. American Mineralogist, 2013, 98, 616-628.	1.9	35
65	The crystal structures of synthetic Re- and PGE-bearing magnesioferrite Spinels: Implications for impacts, accretion and the mantle. Geophysical Research Letters, 2001, 28, 619-622.	4.0	34
66	Angrite meteorites record the onset and flux of water to the inner solar system. Geochimica Et Cosmochimica Acta, 2017, 212, 156-166.	3.9	33
67	The Meteoritical Bulletin, No. 96, September 2009. Meteoritics and Planetary Science, 2009, 44, 1355-1397.	1.6	32
68	Terrestrial planet formation. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 19165-19170.	7.1	32
69	Contemporaneous eruption of calc-alkaline and alkaline lavas in a continental arc (Eastern Mexican) Tj ETQq1 1 0.784314 rgBT /Overlock Mineralogy and Petrology, 2005, 150, 423-440.	3.1	31
70	Distribution of Sb, As, Ge, and In between metal and silicate during accretion and core formation in the Earth. Geochimica Et Cosmochimica Acta, 2017, 198, 1-16.	3.9	31
71	High bedrock incision rates in the Atenguillo River valley, Jalisco, Western Mexico. Earth Surface Processes and Landforms, 1997, 22, 337-343.	2.5	29
72	Genesis of primitive, arc-type basalt: Constraints from Re, Os, and Cl on the depth of melting and role of fluids. Geology, 2002, 30, 619.	4.4	29

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73	The effect of fO2 on the partitioning and valence of V and Cr in garnet/melt pairs and the relation to terrestrial mantle V and Cr content. American Mineralogist, 2011, 96, 1278-1290.	1.9	29
74	Curating NASA's extraterrestrial samplesâ€"Past, present, and future. Chemie Der Erde, 2011, 71, 1-20.	2.0	29
75	Phase equilibria of a low S and C lunar core: Implications for an early lunar dynamo and physical state of the current core. Earth and Planetary Science Letters, 2017, 463, 323-332.	4.4	29
76	Shock melts in QUE 94411, Hammadah al Hamra 237, and Bencubbin: Remains of the missing matrix?. Meteoritics and Planetary Science, 2005, 40, 1377-1391.	1.6	27
77	Redox systematics of a magma ocean with variable pressure-temperature gradients and composition. Proceedings of the National Academy of Sciences of the United States of America, 2012, 109, 11955-11960.	7.1	27
78	Valence and metal/silicate partitioning of Mo: Implications for conditions of Earth accretion and core formation. Earth and Planetary Science Letters, 2016, 437, 89-100.	4.4	27
79	Effect of silicon on activity coefficients of siderophile elements (Au, Pd, Pt, P, Ga, Cu, Zn, and Pb) in liquid Fe: Roles of core formation, late sulfide matte, and late veneer in shaping terrestrial mantle geochemistry. Geochimica Et Cosmochimica Acta, 2018, 232, 101-123.	3.9	25
80	Experimental studies of metalâ€"silicate partitioning of Sb: Implications for the terrestrial and lunar mantles. Geochimica Et Cosmochimica Acta, 2009, 73, 1487-1504.	3.9	24
81	U, Th, and K partitioning between metal, silicate, and sulfide and implications for Mercury's structure, volatile content, and radioactive heat production. American Mineralogist, 2019, 104, 1221-1237.	1.9	23
82	Nucleosynthetic vanadium isotope heterogeneity of the early solar system recorded in chondritic meteorites. Earth and Planetary Science Letters, 2019, 505, 131-140.	4.4	23
83	Not so rare Earth? New developments in understanding the origin of the Earth and Moon. Chemie Der Erde, 2007, 67, 179-200.	2.0	22
84	Volatile element depletion of the Moonâ€"The roles of precursors, post-impact disk dynamics, and core formation. Science Advances, 2019, 5, eaau7658.	10.3	22
85	Channel incision in the Rio Atenguillo, Jalisco, Mexico, defined by 36Cl measurements of bedrock. Geomorphology, 2010, 120, 279-292.	2.6	21
86	The Meteoritical Bulletin, No. 97. Meteoritics and Planetary Science, 2010, 45, 449-493.	1.6	21
87	The water and fluorine content of 4 Vesta. Geochimica Et Cosmochimica Acta, 2019, 266, 568-581.	3.9	21
88	Electrochemical measurements and thermodynamic calculations of redox equilibria in pallasite meteorites: Implications for the eucrite parent body. Geochimica Et Cosmochimica Acta, 1990, 54, 1803-1815.	3.9	20
89	Modeling siderophile elements during core formation and accretion, and the role of the deep mantle and volatiles. American Mineralogist, 2015, 100, 1098-1109.	1.9	18
90	The formation of nuggets of highly siderophile elements in quenched silicate melts at high temperatures: Before or during the silicate quench?. Earth and Planetary Science Letters, 2016, 434, 197-207.	4.4	16

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91	Partition Coefficients at High Pressure and Temperature. , 2003, , 425-449.		15
92	Oxygen Isotopic Composition and Chemical Correlations in Meteorites and the Terrestrial Planets. Reviews in Mineralogy and Geochemistry, 2008, 68, 399-428.	4.8	15
93	Redox-driven exsolution of iron-titanium oxides in magnetite in Miller Range (MIL) 03346 nakhlite: Evidence for post crystallization oxidation in the nakhlite cumulate pile?. American Mineralogist, 2014, 99, 2313-2319.	1.9	15
94	Volatile element signatures in the mantles of Earth, Moon, and Mars: Core formation fingerprints from Bi, Cd, In, and Sn. Meteoritics and Planetary Science, 2018, 53, 284-305.	1.6	15
95	Trace element chemistry of Cumulus Ridge 04071 pallasite with implications for main group pallasites. Meteoritics and Planetary Science, 2009, 44, 1019-1032.	1.6	12
96	Estimation of trace element concentrations in the lunar magma ocean using mineralâ€•and metalâ€silicate melt partition coefficients. Meteoritics and Planetary Science, 2015, 50, 733-758.	1.6	12
97	Intraplate mantle oxidation by volatile-rich silicic magmas. Lithos, 2017, 292-293, 320-333.	1.4	11
98	Investigation of synthetic Mg1.3V1.7O4 spinel with MgO inclusions: Case study of a spinel with an apparently occupied interstitial site. American Mineralogist, 2007, 92, 1031-1037.	1.9	10
99	Ag isotopic and chalcophile element evolution of the terrestrial and martian mantles during accretion: New constraints from Bi and Ag metal-silicate partitioning. Earth and Planetary Science Letters, 2020, 552, 116590.	4.4	10
100	Highly siderophile elements: Constraints on Earth accretion and early differentiation. Geophysical Monograph Series, 2005, , 201-218.	0.1	9
101	Melting of clinopyroxeneÂ+Âmagnesite in iron-bearing planetary mantles and implications for the Earth and Mars. Contributions To Mineralogy and Petrology, 2013, 166, 1067-1098.	3.1	9
102	Effect of silicon on activity coefficients of Bi, Cd, Sn, and Ag in liquid Feâ€Si, and implications for differentiation and core formation. Meteoritics and Planetary Science, 2019, 54, 1379-1394.	1.6	8
103	Sierra Gorda 009: A new member of the metalâ€rich G chondrites grouplet. Meteoritics and Planetary Science, 2020, 55, .	1.6	8
104	The W-WO2oxygen fugacity buffer (WWO) at high pressure and temperature: Implications forfO2buffering and metal-silicate partitioning. American Mineralogist, 2016, 101, 211-221.	1.9	7
105	Association of silica phases as geothermobarometer for eucrites: Implication for twoâ€stage thermal metamorphism in the eucritic crust. Meteoritics and Planetary Science, 2021, 56, 1086-1108.	1.6	7
106	14. Oxygen Isotopie Composition and Chemical Correlations in Meteorites and the Terrestrial Planets. , 2008, , 399-428.		6
107	The effect of dissolved water on the oxidation state of iron in natural silicate liquids. Contributions To Mineralogy and Petrology, 1995, 120, 170-179.	3.1	6
108	Fayalite oxidation processes in Obsidian Cliffs rhyolite flow, Oregon. American Mineralogist, 2015, 100, 1153-1164.	1.9	5

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109	Segregation of Na, K, Rb and Cs into the cores of Earth, Mars and Vesta constrained with partitioning experiments. Geochimica Et Cosmochimica Acta, 2020, 269, 622-638.	3.9	5
110	Prokaryotic and Fungal Characterization of the Facilities Used to Assemble, Test, and Launch the OSIRIS-REx Spacecraft. Frontiers in Microbiology, 2020, 11, 530661.	3.5	5
111	Response to Comment on â€œComparison of Laboratory Emission Spectra with Mercury Telescopic Dataâ€• by Melissa Lane. Icarus, 2000, 143, 409-411.	2.5	4
112	Reply to the Comment by Palme et al. on â€œPrediction of metalâ€"silicate partition coefficients for siderophile elements: An update and assessment of PT conditions for metalâ€"silicate equilibrium during accretion of the Earthâ€• Earth and Planetary Science Letters, 2011, 312, 519-521.	4.4	4
113	Experimental constraints on the destabilization of basalt+calcite+anhydrite at high pressureâ€"high temperature and implications for meteoroid impact modeling. Earth and Planetary Science Letters, 2012, 331-332, 291-304.	4.4	4
114	The Sn isotope composition of chondrites: Implications for volatile element depletion in the Solar System. Geochimica Et Cosmochimica Acta, 2021, 312, 139-157.	3.9	4
115	Curating NASA's Extraterrestrial Samples. Eos, 2013, 94, 253-254.	0.1	3
116	Partition Coefficients at High Pressure and Temperature. , 2014, , 449-477.		3
117	Oxygen and carbon stable isotope composition of the weathering Mgâ€carbonates formed on the surface of the LEW 85320 ordinary chondrite: Revisited. Meteoritics and Planetary Science, 2020, 55, .	1.6	3
118	Activity coefficients of siderophile elements in Fe-Si liquids at high pressure. Geochemical Perspectives Letters, 0, , 44-49.	5.0	3
119	Preservation of ancient impact ages on the R chondrite parent body: 40 Ar/ 39 Ar age of hornblendeâ€bearing R chondrite LAP 04840. Meteoritics and Planetary Science, 2016, 51, 1678-1684.	1.6	2
120	Mantleâ€"melt partitioning of the highly siderophile elements: New results and application to Mars. Meteoritics and Planetary Science, 2020, 55, 2741-2757.	1.6	2
121	New constraints on the size of chondrite parent bodies. American Mineralogist, 2013, 98, 1379-1380.	1.9	1
122	Mineralogy and petrology of dark clasts in the Allan Hills 76005 polymict eucrite pairing group. Meteoritics and Planetary Science, 2020, 55, 781-799.	1.6	1
123	Effect of sulfur on siderophile element partitioning between olivine and martian mantle primary melt. American Mineralogist, 2021, , .	1.9	1
124	Identification and pairing reassessment of unequilibrated ordinary chondrites from four Antarctic dense collection areas. Meteoritics and Planetary Science, 2021, 56, 1556-1573.	1.6	1
125	2015 Service Award for Ralph Harvey. Meteoritics and Planetary Science, 2015, 50, 1491-1492.	1.6	0
126	Magma Ocean Depth and Oxygen Fugacity in the Early Earthâ€"Implications for Biochemistry. Origins of Life and Evolution of Biospheres, 2015, 45, 361-366.	1.9	0

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127	Remembering Mike Drake. Meteoritics and Planetary Science, 2015, 50, 523-529.	1.6	0