

Roberta L Rudnick

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117 papers	15,723 citations	57 h-index	122 g-index
122 ext. papers	17,367 ext. citations	7.1 avg, IF	6.63 L-index

#	Paper	IF	Citations
117	Nature and composition of the continental crust: A lower crustal perspective. <i>Reviews of Geophysics</i> , 1995 , 33, 267	23.1	2247
116	Recycling lower continental crust in the North China craton. <i>Nature</i> , 2004 , 432, 892-7	50.4	1314
115	Making continental crust. <i>Nature</i> , 1995 , 378, 571-578	50.4	996
114	ReO ₂ evidence for replacement of ancient mantle lithosphere beneath the North China craton. <i>Earth and Planetary Science Letters</i> , 2002 , 198, 307-322	5.3	728
113	Carbonatite metasomatism in the northern Tanzanian mantle: Petrographic and geochemical characteristics. <i>Earth and Planetary Science Letters</i> , 1993 , 114, 463-475	5.3	613
112	Petrology and geochemistry of spinel peridotite xenoliths from Hannuoba and Qixia, North China craton. <i>Lithos</i> , 2004 , 77, 609-637	2.9	451
111	Highly siderophile element composition of the Earth's primitive upper mantle: Constraints from new data on peridotite massifs and xenoliths. <i>Geochimica Et Cosmochimica Acta</i> , 2006 , 70, 4528-4550	5.5	423
110	Thermal structure, thickness and composition of continental lithosphere. <i>Chemical Geology</i> , 1998 , 145, 395-411	4.2	404
109	Rutile-bearing refractory eclogites: missing link between continents and depleted mantle. <i>Science</i> , 2000 , 287, 278-81	33.3	393
108	Tracking the budget of Nb and Ta in the continental crust. <i>Chemical Geology</i> , 2000 , 165, 197-213	4.2	387
107	Recycling deep cratonic lithosphere and generation of intraplate magmatism in the North China Craton. <i>Earth and Planetary Science Letters</i> , 2008 , 270, 41-53	5.3	365
106	Lithium isotopic composition and concentration of the upper continental crust. <i>Geochimica Et Cosmochimica Acta</i> , 2004 , 68, 4167-4178	5.5	314
105	Precise elemental and isotope ratio determination by simultaneous solution nebulization and laser ablation-ICP-MS: application to U/Bb geochronology. <i>Chemical Geology</i> , 2000 , 164, 281-301	4.2	298
104	Monazite-Xenotime-Garnet Equilibrium in Metapelites and a New Monazite-Garnet Thermometer. <i>Journal of Petrology</i> , 2001 , 42, 2083-2107	3.9	273
103	Archean upper crust transition from mafic to felsic marks the onset of plate tectonics. <i>Science</i> , 2016 , 351, 372-5	33.3	250
102	Extreme lithium isotopic fractionation during continental weathering revealed in saprolites from South Carolina. <i>Chemical Geology</i> , 2004 , 212, 45-57	4.2	211
101	Temporal Evolution of the Lithospheric Mantle beneath the Eastern North China Craton. <i>Journal of Petrology</i> , 2009 , 50, 1857-1898	3.9	207

100	Extremely light Li in orogenic eclogites: The role of isotope fractionation during dehydration in subducted oceanic crust. <i>Earth and Planetary Science Letters</i> , 2003 , 208, 279-290	5.3	199
99	Contrasting lithium and magnesium isotope fractionation during continental weathering. <i>Earth and Planetary Science Letters</i> , 2010 , 300, 63-71	5.3	194
98	Re-Os systematics of mantle xenoliths from the East African Rift: age, structure, and history of the Tanzanian craton. <i>Geochimica Et Cosmochimica Acta</i> , 1999 , 63, 1203-1217	5.5	186
97	Geochemistry of xenolithic eclogites from West Africa, part I: A link between low MgO eclogites and Archean crust formation. <i>Geochimica Et Cosmochimica Acta</i> , 2001 , 65, 1499-1527	5.5	179
96	The Pb isotopic compositions of lower crustal xenoliths and the evolution of lower crustal Pb. <i>Earth and Planetary Science Letters</i> , 1990 , 98, 192-207	5.3	177
95	Diffusion-driven extreme lithium isotopic fractionation in country rocks of the Tin Mountain pegmatite. <i>Earth and Planetary Science Letters</i> , 2006 , 243, 701-710	5.3	172
94	Heterogeneous magnesium isotopic composition of the upper continental crust. <i>Geochimica Et Cosmochimica Acta</i> , 2010 , 74, 6867-6884	5.5	170
93	HfNd isotopic evolution of the lower crust. <i>Earth and Planetary Science Letters</i> , 2000 , 181, 115-129	5.3	149
92	Lithium in Jack Hills zircons: Evidence for extensive weathering of Earth's earliest crust. <i>Earth and Planetary Science Letters</i> , 2008 , 272, 666-676	5.3	148
91	Preservation of ancient and fertile lithospheric mantle beneath the southwestern United States. <i>Nature</i> , 2001 , 411, 69-73	5.4	147
90	Interpreting ages from ReOs isotopes in peridotites. <i>Lithos</i> , 2009 , 112, 1083-1095	2.9	145
89	Rare earth element patterns in Archean high-grade metasediments and their tectonic significance. <i>Geochimica Et Cosmochimica Acta</i> , 1986 , 50, 2267-2279	5.5	144
88	Trace elements in diamond inclusions from eclogites reveal link to Archean granites. <i>Earth and Planetary Science Letters</i> , 1994 , 128, 199-213	5.3	130
87	ReOs isotope evidence for the composition, formation and age of the lower continental crust. <i>Nature</i> , 1998 , 393, 58-61	5.4	129
86	Formation of cratonic lithosphere: An integrated thermal and petrological model. <i>Lithos</i> , 2012 , 149, 4-15.	2.9	128
85	Lithium elemental and isotopic disequilibrium in minerals from peridotite xenoliths from far-east Russia: Product of recent melt/fluid-rock reaction. <i>Earth and Planetary Science Letters</i> , 2007 , 256, 278-293	5.3	127
84	Mapping lithospheric boundaries using Os isotopes of mantle xenoliths: An example from the North China Craton. <i>Geochimica Et Cosmochimica Acta</i> , 2011 , 75, 3881-3902	5.5	107
83	Microstructure, texture and seismic anisotropy of the lithospheric mantle above a mantle plume: Insights from the Labait volcano xenoliths (Tanzania). <i>Earth and Planetary Science Letters</i> , 2005 , 232, 295-314	5.3	106

82	Osmium isotopic evidence for mesozoic removal of lithospheric mantle beneath the sierra nevada, california. <i>Science</i> , 2000 , 289, 1912-6	33.3	104
81	A reference Earth model for the heat-producing elements and associated geoneutrino flux. <i>Geochemistry, Geophysics, Geosystems</i> , 2013 , 14, 2003-2029	3.6	103
80	Lithium Isotope Geochemistry. <i>Reviews in Mineralogy and Geochemistry</i> , 2017 , 82, 165-217	7.1	94
79	GSD-1G and MPI-DING Reference Glasses for In Situ and Bulk Isotopic Determination. <i>Geostandards and Geoanalytical Research</i> , 2011 , 35, 193-226	3.6	94
78	Lithium isotopic systematics of granites and pegmatites from the Black Hills, South Dakota. <i>American Mineralogist</i> , 2006 , 91, 1488-1498	2.9	91
77	Geochemistry of xenolithic eclogites from West Africa, part 2: origins of the high MgO eclogites. <i>Geochimica Et Cosmochimica Acta</i> , 2002 , 66, 4325-4345	5.5	90
76	Lithium isotopic composition and concentration of the deep continental crust. <i>Chemical Geology</i> , 2008 , 255, 47-59	4.2	82
75	Standards for publication of isotope ratio and chemical data in Chemical Geology. <i>Chemical Geology</i> , 2003 , 202, 1-4	4.2	82
74	Massive magnesium depletion and isotope fractionation in weathered basalts. <i>Geochimica Et Cosmochimica Acta</i> , 2014 , 135, 336-349	5.5	81
73	Lithium isotopic systematics of A-type granites and their mafic enclaves: Further constraints on the Li isotopic composition of the continental crust. <i>Chemical Geology</i> , 2009 , 262, 370-379	4.2	78
72	Tracking the lithium isotopic evolution of the mantle using carbonatites. <i>Earth and Planetary Science Letters</i> , 2008 , 265, 726-742	5.3	76
71	Dating the lower crust by ion microprobe. <i>Earth and Planetary Science Letters</i> , 1987 , 85, 145-161	5.3	72
70	Petrologic and geochemical investigation of carbonates in peridotite xenoliths from northeastern Tanzania. <i>Contributions To Mineralogy and Petrology</i> , 2000 , 139, 470-484	3.5	71
69	Influence of chemical weathering on the composition of the continental crust: Insights from Li and Nd isotopes in bauxite profiles developed on Columbia River Basalts. <i>Geochimica Et Cosmochimica Acta</i> , 2013 , 115, 73-91	5.5	70
68	New perspectives on the Li isotopic composition of the upper continental crust and its weathering signature. <i>Earth and Planetary Science Letters</i> , 2015 , 428, 181-192	5.3	68
67	Insights into Li and Li isotope cycling and sub-arc metasomatism from veined mantle xenoliths, Kamchatka. <i>Contributions To Mineralogy and Petrology</i> , 2009 , 158, 197-222	3.5	67
66	Li-Sr-Nd isotope signatures of the plume and cratonic lithospheric mantle beneath the margin of the rifted Tanzanian craton (Labait). <i>Contributions To Mineralogy and Petrology</i> , 2007 , 155, 79-92	3.5	64
65	The Li isotopic composition of Oldoinyo Lengai: Nature of the mantle sources and lack of isotopic fractionation during carbonatite petrogenesis. <i>Earth and Planetary Science Letters</i> , 2007 , 254, 77-89	5.3	63

64	Compositional evolution of the upper continental crust through time, as constrained by ancient glacial diamictites. <i>Geochimica Et Cosmochimica Acta</i> , 2016 , 186, 316-343	5.5	62
63	Processes controlling highly siderophile element fractionations in xenolithic peridotites and their influence on Os isotopes. <i>Earth and Planetary Science Letters</i> , 2010 , 297, 287-297	5.3	61
62	Arrested kinetic Li isotope fractionation at the margin of the Ilíhaussaq complex, South Greenland: Evidence for open-system processes during final cooling of peralkaline igneous rocks. <i>Chemical Geology</i> , 2007 , 246, 207-230	4.2	58
61	Re-Os and U-Pb geochronological constraints on the eclogite-tonalite connection in the Archean Man Shield, West Africa. <i>Precambrian Research</i> , 2002 , 118, 267-283	3.9	58
60	Limited lithium isotopic fractionation during progressive metamorphic dehydration in metapelites: A case study from the Onawa contact aureole, Maine. <i>Chemical Geology</i> , 2007 , 239, 1-12	4.2	56
59	Deep lithospheric dynamics beneath the Sierra Nevada during the Mesozoic and Cenozoic as inferred from xenolith petrology. <i>Geochemistry, Geophysics, Geosystems</i> , 2001 , 2, n/a-n/a	3.6	56
58	Origins of non-equilibrium lithium isotopic fractionation in xenolithic peridotite minerals: Examples from Tanzania. <i>Chemical Geology</i> , 2009 , 258, 17-27	4.2	54
57	Processes controlling δ Li in rivers illuminated by study of streams and groundwaters draining basalts. <i>Earth and Planetary Science Letters</i> , 2015 , 409, 212-224	5.3	51
56	The behavior of chalcophile elements during magmatic differentiation as observed in Kilauea Iki lava lake, Hawaii. <i>Geochimica Et Cosmochimica Acta</i> , 2017 , 210, 71-96	5.5	46
55	Constraints on continental crustal mass loss via chemical weathering using lithium and its isotopes. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2011 , 108, 20873-80	11.5	46
54	Onset of oxidative weathering of continents recorded in the geochemistry of ancient glacial diamictites. <i>Earth and Planetary Science Letters</i> , 2014 , 408, 87-99	5.3	44
53	Re-Os evidence for the age and origin of peridotites from the Dabie-Bulu ultrahigh pressure metamorphic belt, China. <i>Chemical Geology</i> , 2007 , 236, 323-338	4.2	44
52	Platinum-group element abundances and Re-Os isotopic systematics of the upper continental crust through time: Evidence from glacial diamictites. <i>Geochimica Et Cosmochimica Acta</i> , 2016 , 191, 1-16	5.5	43
51	Barium isotopic composition of the upper continental crust. <i>Geochimica Et Cosmochimica Acta</i> , 2018 , 233, 33-49	5.5	41
50	Li and δ Li in mudrocks from the British Caledonides: Metamorphism and source influences. <i>Geochimica Et Cosmochimica Acta</i> , 2009 , 73, 7325-7340	5.5	40
49	Heterogeneous potassium isotopic composition of the upper continental crust. <i>Geochimica Et Cosmochimica Acta</i> , 2020 , 278, 122-136	5.5	37
48	Fluid inclusions in high-grade gneisses of the Kapuskasing structural zone, Ontario: metamorphic fluids and uplift/erosion path. <i>Contributions To Mineralogy and Petrology</i> , 1984 , 87, 399-406	3.5	36
47	Sedimentary input to the source of Lesser Antilles lavas: A Li perspective. <i>Geochimica Et Cosmochimica Acta</i> , 2014 , 144, 43-58	5.5	35

46	Potassium isotope fractionation during continental weathering and implications for global K isotopic balance. <i>Geochimica Et Cosmochimica Acta</i> , 2020 , 278, 261-271	5.5	34
45	A lithium isotopic study of sub-greenschist to greenschist facies metamorphism in an accretionary prism, New Zealand. <i>Earth and Planetary Science Letters</i> , 2011 , 301, 213-221	5.3	34
44	Deformation, hydration, and anisotropy of the lithospheric mantle in an active rift: Constraints from mantle xenoliths from the North Tanzanian Divergence of the East African Rift. <i>Tectonophysics</i> , 2015 , 639, 34-55	3.1	33
43	Heterogeneous magnesium isotopic composition of the lower continental crust: A xenolith perspective. <i>Geochemistry, Geophysics, Geosystems</i> , 2013 , 14, 3844-3856	3.6	32
42	The behavior of magnesium isotopes in low-grade metamorphosed mudrocks. <i>Geochimica Et Cosmochimica Acta</i> , 2015 , 165, 435-448	5.5	30
41	A gravimetric K ₂ O/Cl ₆ standard: Application to precise and accurate Os spike calibration. <i>Geochimica Et Cosmochimica Acta</i> , 2001 , 65, 2113-2127	5.5	30
40	Measured and calculated elastic wave speeds in partially equilibrated mafic granulite xenoliths: Implications for the properties of an underplated lower continental crust. <i>Journal of Geophysical Research</i> , 1995 , 100, 10211-10218		30
39	Insights into chemical weathering of the upper continental crust from the geochemistry of ancient glacial diamictites. <i>Geochimica Et Cosmochimica Acta</i> , 2016 , 176, 96-117	5.5	29
38	Age diversity of the deep crust in northern Mexico. <i>Geology</i> , 1991 , 19, 1197	5	29
37	Multi-mode Li diffusion in natural zircons: Evidence for diffusion in the presence of step-function concentration boundaries. <i>Earth and Planetary Science Letters</i> , 2017 , 474, 110-119	5.3	28
36	The behavior of lithium in amphibolite- to granulite-facies rocks of the Ivrea-Verbanio Zone, NW Italy. <i>Chemical Geology</i> , 2011 , 289, 76-85	4.2	28
35	Multidisciplinary Constraints on the Abundance of Diamond and Eclogite in the Cratonic Lithosphere. <i>Geochemistry, Geophysics, Geosystems</i> , 2018 , 19, 2062-2086	3.6	27
34	Tungsten-182 in the upper continental crust: Evidence from glacial diamictites. <i>Chemical Geology</i> , 2018 , 494, 144-152	4.2	27
33	Plume-cratonic lithosphere interaction recorded by water and other trace elements in peridotite xenoliths from the Labait volcano, Tanzania. <i>Geochemistry, Geophysics, Geosystems</i> , 2015 , 16, 1687-1710	3.6	27
32	Geochemistry of molybdenum in the continental crust. <i>Geochimica Et Cosmochimica Acta</i> , 2018 , 238, 36-54	5.5	24
31	Thermal history and origin of the Tanzanian Craton from Pb isotope thermochronology of feldspars from lower crustal xenoliths. <i>Earth and Planetary Science Letters</i> , 2011 , 301, 493-501	5.3	22
30	Processes controlling lithium isotopic distribution in contact aureoles: A case study of the Florence County pegmatites, Wisconsin. <i>Geochemistry, Geophysics, Geosystems</i> , 2010 , 11, n/a-n/a	3.6	22
29	Methanogenesis sustained by sulfide weathering during the Great Oxidation Event. <i>Nature Geoscience</i> , 2019 , 12, 296-300	18.3	20

28	Geochemical Earth Reference Model (GERM): description of the initiative. <i>Chemical Geology</i> , 1998 , 145, 153-159	4.2	20
27	How mafic was the Archean upper continental crust? Insights from Cu and Ag in ancient glacial diamictites. <i>Geochimica Et Cosmochimica Acta</i> , 2020 , 278, 16-29	5.5	20
26	Europium anomalies constrain the mass of recycled lower continental crust. <i>Geology</i> , 2015 , 43, 703-706	5	19
25	Big insights from tiny peridotites: Evidence for persistence of Precambrian lithosphere beneath the eastern North China Craton. <i>Tectonophysics</i> , 2015 , 650, 104-112	3.1	19
24	Determination of Ga, Ge, Mo, Ag, Cd, In, Sn, Sb, W, Tl and Bi in USGS Whole-Rock Reference Materials by Standard Addition ICP-MS. <i>Geostandards and Geoanalytical Research</i> , 2015 , 39, 371-379	3.6	18
23	Granulite-Facies Xenoliths in Rift Basalts of Northern Tanzania: Age, Composition and Origin of Archean Lower Crust. <i>Journal of Petrology</i> , 2014 , 55, 1243-1286	3.9	18
22	Comparative Sr-Nd-Hf-Pb isotope systematics of xenolithic peridotites from Yangyuan, North China Craton: Additional evidence for a Paleoproterozoic age. <i>Chemical Geology</i> , 2012 , 332-333, 1-14	4.2	16
21	Evolution of the lithospheric mantle beneath the East African Rift in Tanzania and its potential signatures in rift magmas 2011 ,		16
20	Geochemical constraints on the origin of Archean tonalitic-trondhjemitic rocks and implications for lower crustal composition. <i>Geological Society Special Publication</i> , 1986 , 24, 179-191	1.7	16
19	Geochemistry and tectonic affinities of a Proterozoic bimodal igneous suite, west Texas. <i>Geology</i> , 1983 , 11, 352	5	15
18	Reconciling the discrepancy between the dehydration rates in mantle olivine and pyroxene during xenolith emplacement. <i>Geochimica Et Cosmochimica Acta</i> , 2019 , 267, 179-195	5.5	14
17	Rapid mantle convection drove massive crustal thickening in the late Archean. <i>Geochimica Et Cosmochimica Acta</i> , 2020 , 278, 6-15	5.5	13
16	Molybdenum isotope fractionation in glacial diamictites tracks the onset of oxidative weathering of the continental crust. <i>Earth and Planetary Science Letters</i> , 2020 , 534, 116083	5.3	12
15	Evidence for high-temperature fractionation of lithium isotopes during differentiation of the Moon. <i>Meteoritics and Planetary Science</i> , 2016 , 51, 1046-1062	2.8	10
14	Sodic Pyroxene and Sodic Amphibole as Potential Reference Materials for In Situ Lithium Isotope Determinations by SIMS. <i>Geostandards and Geoanalytical Research</i> , 2008 , 32, 295-310	3.6	9
13	Osmium Isotope Constraints on Tectonic Evolution of the Lithosphere in the Southwestern United States. <i>International Geology Review</i> , 2002 , 44, 501-511	2.3	7
12	Magnesium isotope evidence for a recycled origin of cratonic eclogites. <i>Geology</i> , 2015 , G37259.1	5	6
11	The origin of low-MgO eclogite xenoliths from Obnazhennaya kimberlite, Siberian craton. <i>Contributions To Mineralogy and Petrology</i> , 2020 , 175, 1	3.5	5

10	6 Lithium Isotope Geochemistry 2017 ,		4
9	Four-dimensional thermal evolution of the East African Orogen: accessory phase petrochronology of crustal profiles through the Tanzanian Craton and Mozambique Belt, northeastern Tanzania. <i>Contributions To Mineralogy and Petrology</i> , 2020 , 175, 1	3.5	4
8	Lithium isotopes may trace subducting slab signatures in Aleutian arc lavas and intrusions. <i>Geochimica Et Cosmochimica Acta</i> , 2020 , 278, 322-339	5.5	4
7	Assessing molybdenum isotope fractionation during continental weathering as recorded by weathering profiles in saprolites and bauxites. <i>Chemical Geology</i> , 2021 , 566, 120103	4.2	3
6	Molybdenum contents of sulfides in ancient glacial diamictites: Implications for molybdenum delivery to the oceans prior to the Great Oxidation Event. <i>Geochimica Et Cosmochimica Acta</i> , 2020 , 278, 30-50	5.5	3
5	History of crustal growth in Africa and the Americas from detrital zircon and Nd isotopes in glacial diamictites. <i>Precambrian Research</i> , 2022 , 373, 106641	3.9	2
4	Zinc isotope evidence for carbonate alteration of oceanic crustal protoliths of cratonic eclogites. <i>Earth and Planetary Science Letters</i> , 2022 , 580, 117394	5.3	1
3	Zirconium isotopic composition of the upper continental crust through time. <i>Earth and Planetary Science Letters</i> , 2021 , 572, 117086	5.3	0
2	Homogenising the upper continental crust: The Si isotope evolution of the crust recorded by ancient glacial diamictites. <i>Earth and Planetary Science Letters</i> , 2022 , 591, 117620	5.3	0
1	Stuart Ross Taylor (1925-2021): A tribute to his life and scientific career. <i>Meteoritics and Planetary Science</i> , 2021 , 56, 1784-1791	2.8	