Rainer Abart

List of Publications by Year
in descending order

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114 papers	2,680 citations	186265 28 h-index	233421 45 g-index
138 all docs	138 docs citations	138 times ranked	2711 citing authors

#	Article	IF	Citations
1	Loss of water from Mars:. Icarus, 2003, 165, 9-25.	2.5	197
2	Characterization of polymetamorphism in the Austroalpine basement east of the Tauern Window using garnet isopleth thermobarometry. Journal of Metamorphic Geology, 2006, 24, 451-475.	3.4	153
3	Carbon isotope record of the P/T boundary and the Lower Triassic in the Southern Alps: Evidence for rapid changes in storage of organic carbon. Palaeogeography, Palaeoclimatology, Palaeoecology, 2007, 252, 347-354.	2.3	125
4	Carbonatite melt inclusions in coexisting magnetite, apatite and monticellite in Kerimasi calciocarbonatite, Tanzania: melt evolution and petrogenesis. Contributions To Mineralogy and Petrology, 2011, 161, 177-196.	3.1	90
5	THERIA_G: a software program to numerically model prograde garnet growth. Contributions To Mineralogy and Petrology, 2008, 155, 657-671.	3.1	86
6	In Situ Observations of Phase Transitions in Metastable Nickel (Carbide)/Carbon Nanocomposites. Journal of Physical Chemistry C, 2016, 120, 22571-22584.	3.1	80
7	Redistribution of HFSE elements during rutile replacement by titanite. Contributions To Mineralogy and Petrology, 2010, 160, 279-295.	3.1	59
8	An improved FIB sample preparation technique for site-specific plan-view specimens: A new cutting geometry. Ultramicroscopy, 2018, 184, 310-317.	1.9	57
9	Prograde garnet growth along complex Pâ€“Tâ€“t paths: results from numerical experiments on polyphase garnet from the WÃ¶lz Complex (Austroalpine basement). Contributions To Mineralogy and Petrology, 2008, 155, 673-688.	3.1	56
10	Enhanced mass transfer through short-circuit diffusion: Growth of garnet reaction rims at eclogite facies conditions. American Mineralogist, 2006, 91, 1024-1038.	1.9	54
11	Deformation, mass transfer and mineral reactions in an eclogite facies shear zone in a polymetamorphic metapelite (Monte Rosa nappe, western Alps). Journal of Metamorphic Geology, 2004, 22, 97-118.	3.4	53
12	A Quaternary Solution Model for White Micas Based on Natural Coexisting Phengiteâ€“Paragonite Pairs. Journal of Petrology, 2005, 46, 2129-2144.	2.8	49
13	Symplectite formation during decompression induced garnet breakdown in lower crustal mafic granulite xenoliths: mechanisms and rates. Contributions To Mineralogy and Petrology, 2010, 159, 293-314.	3.1	46
14	Growth, structure and stability of sputter-deposited MoS₂ thin films. Beilstein Journal of Nanotechnology, 2017, 8, 1115-1126.	2.8	44
15	TiO2 exsolution from garnet by open-system precipitation: evidence from crystallographic and shape preferred orientation of rutile inclusions. Contributions To Mineralogy and Petrology, 2013, 166, 211-234.	3.1	43
16	Silicon and oxygen self diffusion in enstatite polycrystals: the Milke et al. (2001) rim growth experiments revisited. Contributions To Mineralogy and Petrology, 2004, 147, 633-646.	3.1	42
17	Exsolution by spinodal decomposition II: Perthite formation during slow cooling of anatexites from Ngoronghoro, Tanzania. Numerische Mathematik, 2009, 309, 450-475.	1.4	42
18	Experimental Na/K exchange between alkali feldspar and an NaClâ€“KCl salt melt: chemically induced fracturing and element partitioning. Contributions To Mineralogy and Petrology, 2012, 164, 341-358.	3.1	41

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19	Coupling forward modelling of garnet growth with monazite geochronology: an application to the Rappold Complex (Austroalpine crystalline basement). Journal of Metamorphic Geology, 2008, 26, 775-793.	3.4	36
20	Matrix rheology effects on reaction rim growth I: evidence from orthopyroxene rim growth experiments. Journal of Metamorphic Geology, 2009, 27, 71-82.	3.4	36
21	Asymmetrically zoned reaction rims: assessment of grain boundary diffusivities and growth rates related to natural diffusionâ€controlled mineral reactions. Journal of Metamorphic Geology, 2008, 26, 99-120.	3.4	32
22	Grain boundary and volume diffusion experiments in yttrium aluminium garnet bicrystals at 1,723ÂK: a miniaturized study. Contributions To Mineralogy and Petrology, 2011, 162, 739-749.	3.1	32
23	Rb/Sr isotopic and compositional retentivity of muscovite during deformation. Lithos, 2015, 227, 161-178.	1.4	32
24	Matrix rheology effects on reaction rim growth II: coupled diffusion and creep model. Journal of Metamorphic Geology, 2009, 27, 83-91.	3.4	31
25	Thermodynamic model for diffusion controlled reaction rim growth in a binary system: Application to the forsterite-enstatite-quartz system. Numerische Mathematik, 2009, 309, 114-131.	1.4	31
26	Exsolution by spinodal decomposition in multicomponent mineral solutions. Acta Materialia, 2012, 60, 5481-5493.	7.9	31
27	Garnet Breakdown, Symplectite Formation and Melting in Basanite-hosted Peridotite Xenoliths from Zinst (Bavaria, Bohemian Massif). Journal of Petrology, 2013, 54, 1691-1723.	2.8	29
28	Metasomatic coronas around hornblendite xenoliths in granulite facies marble, Ivrea zone, N Italy, I: constraints on component mobility. Contributions To Mineralogy and Petrology, 2001, 141, 473-493.	3.1	28
29	Reaction rim growth inÂtheÂsystemÂMgO-Al2O3-SiO2 underÂuniaxialÂstress. Mineralogy and Petrology, 2010, 99, 263-277.	1.1	28
30	Enhancement of solid-state reaction rates by non-hydrostatic stress effects on polycrystalline diffusion kinetics. American Mineralogist, 2010, 95, 1399-1407.	1.9	27
31	Experimental growth of Ã¥kermanite reaction rims between wollastonite and monticellite: evidence for volume diffusion control. Contributions To Mineralogy and Petrology, 2011, 161, 389-399.	3.1	27
32	Growth of plagioclase rims around metastable kyanite during decompression of high-pressure felsic granulites (Bohemian Massif). Journal of Metamorphic Geology, 2011, 29, 1003-1018.	3.4	26
33	Contrasting Eoalpine P-T evolutions in the southern Koralpe, Eastern Alps. Mineralogy and Petrology, 1997, 60, 61-80.	1.1	24
34	Chemically induced fracturing in alkali feldspar. Physics and Chemistry of Minerals, 2014, 41, 1-16.	0.8	24
35	Mechanisms of myrmekite formation: case study from the Weinsberg granite, Moldanubian zone, Upper Austria. Contributions To Mineralogy and Petrology, 2014, 168, 1.	3.1	24
36	Title is missing!. Mineralogy and Petrology, 2002, 76, 99-120.	1.1	23

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37	The Glarus thrust: excursion guide and report of a field trip of the Swiss Tectonic Studies Group (Swiss Geological Society, 14.â€“16. 09. 2006). Swiss Journal of Geosciences, 2008, 101, 323-340.	1.2	23
38	Evolution of nanostructure and specific surface area during thermally driven dehydration of Mg(OH)2. Physics and Chemistry of Minerals, 2016, 43, 59-68.	0.8	22
39	Phase Relations and Chemical Composition of Phengite and Paragonite in Pelitic Schists During Decompression: a Case Study from the Monte Rosa Nappe and Camugheraâ€“Moncucco Unit, Western Alps. Journal of Petrology, 2005, 46, 2145-2166.	2.8	20
40	Crystallographic orientation relationships in hostâ€“inclusion systems: New insights from large EBSD data sets. American Mineralogist, 2016, 101, 690-705.	1.9	20
41	Oxygen, carbon and strontium isotope systematics in two profiles across the Glarus thrust: implications for fluid flow. Contributions To Mineralogy and Petrology, 2002, 143, 192-208.	3.1	19
42	Evidence for xenolithâ€“host basalt interaction from chemical patterns in Feâ€“Ti-oxides from mafic granulite xenoliths of the Bakonyâ€“Balaton Volcanic field (W-Hungary). Mineralogy and Petrology, 2009, 95, 219-234.	1.1	19
43	Oxygen isotope trends and anomalies in granitoids of the Tibetan plateau. Journal of Asian Earth Sciences, 2002, 21, 241-250.	2.3	18
44	Exsolution by spinodal decomposition I: Evolution equation for binary mineral solutions with anisotropic interfacial energy. Numerische Mathematik, 2009, 309, 431-449.	1.4	18
45	Modeling of diffusional phase transformation in multi-component systems with stoichiometric phases. Acta Materialia, 2010, 58, 2905-2911.	7.9	18
46	Experimental growth of diopside + merwinite reaction rims: The effect of water on microstructure development. American Mineralogist, 2012, 97, 220-230.	1.9	18
47	Oriented chromiteâ€“diopside symplectic inclusions in olivine from lunar regolith delivered by â€œLuna-24â€•mission. Geochimica Et Cosmochimica Acta, 2013, 104, 84-98.	3.9	18
48	Implications of kinetically controlled mineral-fluid exchange on the geometry of stable-isotope fronts. European Journal of Mineralogy, 2000, 12, 1069-1082.	1.3	18
49	Thermodynamic Model For Reaction Rim Growth: Interface Reaction and Diffusion Control. Numerische Mathematik, 2011, 311, 517-527.	1.4	17
50	Sodium-potassium interdiffusion in potassium-rich alkali feldspar II: Composition- and temperature-dependence obtained from cation exchange experiments. Numerische Mathematik, 2014, 314, 1300-1318.	1.4	17
51	Fluid flow and rock alteration along the Glarus thrust. Swiss Journal of Geosciences, 2008, 101, 251-268.	1.2	16
52	Hydration of periclase at 350 â˜ C to 620 â˜ C and 200 MPa: experimental calibration of reaction rate. Mineralogy and Petrology, 2016, 110, 1-10.	1.1	16
53	Diffusion along interphase boundaries and its effect on retrograde zoning patterns of metamorphic minerals. Contributions To Mineralogy and Petrology, 2007, 154, 205-216.	3.1	15
54	Compositional zoning of garnet porphyroblasts from the polymetamorphic WÃ¶lz Complex, Eastern Alps. Mineralogy and Petrology, 2009, 97, 173-188.	1.1	15

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55	Intracrystalline microstructures in alkali feldspars from fluid-deficient felsic granulites: a mineral chemical and TEM study. Contributions To Mineralogy and Petrology, 2012, 164, 715-729.	3.1	15
56	Sodium-potassium interdiffusion in potassium-rich alkali feldspar I: Full diffusivity tensor at 850 ÂC. Numerische Mathematik, 2014, 314, 1284-1299.	1.4	15
57	Contact metamorphism and selective metasomatism of the layered Bellerophon Formation in the eastern Monzoni contact aureole, northern Italy. Mineralogy and Petrology, 2007, 91, 25-53.	1.1	14
58	Volume diffusion of Ytterbium in YAG: thin-film experiments and combined TEMâ€“RBS analysis. Physics and Chemistry of Minerals, 2010, 37, 751-760.	0.8	14
59	Diffusion and solubility of hydrogen and water in periclase. Physics and Chemistry of Minerals, 2013, 40, 19-27.	0.8	14
60	Reaction-induced fracturing in a hot pressed calcite-periclase aggregate. Journal of Structural Geology, 2017, 94, 116-135.	2.3	14
61	Potassium self-diffusion in a K-rich single-crystal alkali feldspar. Physics and Chemistry of Minerals, 2017, 44, 345-351.	0.8	14
62	Metamorphic mineral reactions: Porphyroblast, corona and symplectite growth. , 2017, , 469-540.		14
63	Perthite microstructure in magmatic alkali feldspar with oscillatory zoning; Weinsberg Granite, Upper Austria. Mineralogy and Petrology, 2009, 97, 251-263.	1.1	13
64	Localization of submicron inclusion re-equilibration at healed fractures in host garnet. Contributions To Mineralogy and Petrology, 2014, 168, 1.	3.1	13
65	Diffusion-controlled crack propagation in alkali feldspar. Physics and Chemistry of Minerals, 2019, 46, 15-26.	0.8	13
66	Thermodynamic model for growth of reaction rims with lamellar microstructure. American Mineralogist, 2012, 97, 231-240.	1.9	12
67	Crystallographic and shape orientations of magnetite micro-inclusions in plagioclase. Contributions To Mineralogy and Petrology, 2020, 175, 1.	3.1	12
68	Radiotracer Experiments and Monte Carlo Simulations of Sodium Diffusion in Alkali Feldspar: Evidence against the Vacancy Mechanism. Defect and Diffusion Forum, 0, 363, 79-84.	0.4	12
69	Growth of magnesio-aluminate spinel in thin-film geometry: in situ monitoring using synchrotron X-ray diffraction and thermodynamic model. Physics and Chemistry of Minerals, 2014, 41, 681-693.	0.8	11
70	Reaction kinetics of dolomite rim growth. Contributions To Mineralogy and Petrology, 2014, 167, 1.	3.1	11
71	Synthesis of monticelliteâ€“forsterite and merwiniteâ€“forsterite symplectites in the CaOâ€“MgOâ€“SiO2 model system: influence of temperature and water content on microstructure evolution. Contributions To Mineralogy and Petrology, 2018, 173, 1.	3.1	11
72	Effect of chemically induced fracturing on the ice nucleation activity of alkali feldspar. Atmospheric Chemistry and Physics, 2021, 21, 11801-11814.	4.9	11

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73	An ultraviolet simulator for the incident Martian surface radiation and its applications. International Journal of Astrobiology, 2005, 4, 241-249.	1.6	10
74	The chemical variability at the surface of Mars: Implication for sediment formation and rock weathering. Icarus, 2006, 183, 10-29.	2.5	10
75	The behavior of Mg, Fe, and Ni during the replacement of olivine by orthopyroxene: experiments relevant to mantle metasomatism. Mineralogy and Petrology, 2011, 103, 1-8.	1.1	10
76	Plagioclase hosted Fe-Ti-oxide micro-inclusions in an oceanic gabbro-plagiogranite association from the Mid Atlantic ridge at 13Â34' N. Numerische Mathematik, 2016, 316, 85-109.	1.4	10
77	Fe-Ti oxide micro-inclusions in clinopyroxene of oceanic gabbro: Phase content, orientation relations and petrogenetic implication. Lithos, 2017, 290-291, 104-115.	1.4	10
78	Fluid inclusions related to Variscan and Alpine metamorphism in the Austroalpine ï¿½tztal Basement, Eastern Alps. Mineralogy and Petrology, 1999, 65, 29-49.	1.1	9
79	Complex chemical zoning in eclogite facies garnet reaction rims: the role of grain boundary diffusion. Mineralogy and Petrology, 2009, 95, 303-313.	1.1	9
80	Microstructure and texture evolution during growth of magnesio-aluminate spinel at corundum-periclase interfaces under uniaxial load: The effect of stress concentration on reaction progress. Numerische Mathematik, 2014, 314, 940-965.	1.4	9
81	Lattice strain across Naâ€“K interdiffusion fronts in alkali feldspar: an electron back-scatter diffraction study. Physics and Chemistry of Minerals, 2014, 41, 795-804.	0.8	9
82	Ionic conductivity in gem-quality single-crystal alkali feldspar from the Eifel: temperature, orientation and composition dependence. Physics and Chemistry of Minerals, 2016, 43, 327-340.	0.8	9
83	Mantle xenoliths from SzentbÃ©kÃ¡lla, Balaton: Geochemical and petrological constraints on the evolution of the lithospheric mantle underneath Pannonian Basin, Hungary. Lithos, 2017, 276, 30-44.	1.4	8
84	Microstructure of calcite deformed by high-pressure torsion: An X-ray line profile study. Tectonophysics, 2017, 721, 448-461.	2.2	8
85	Intragranular deformation mechanisms in calcite deformed by high-pressure torsion at room temperature. Mineralogy and Petrology, 2020, 114, 105-118.	1.1	8
86	Melting, fluid migration and fluid-rock interactions in the lower crust beneath the Bakony-Balaton Highland volcanic field: a silicate melt and fluid inclusion study. Mineralogy and Petrology, 2015, 109, 217-234.	1.1	7
87	Formation pathways of oriented magnetite micro-inclusions in plagioclase from oceanic gabbro. Contributions To Mineralogy and Petrology, 2021, 176, 1.	3.1	7
88	Upperâ€“greenschist facies intragrain deformation of albite in mylonitic metaâ€“pegmatite and the influence of crystallographic anisotropy on microstructure formation. Journal of Structural Geology, 2014, 69, 47-58.	2.3	6
89	Garnet growth in frictional melts of the Ivrea Zone (Italy). Italian Journal of Geosciences, 2015, 134, 149-161.	0.8	6
90	Interlayer growth kinetics of a binary solid-solution based on the thermodynamic extremal principle: Application to the formation of spinel at periclase-corundum contacts. Numerische Mathematik, 2016, 316, 309-328.	1.4	6

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91	The structure of a propagating MgAl₂O₄/MgO interface: linked atomic- and Î¼m-scale mechanisms of interface motion. Philosophical Magazine, 2016, 96, 2488-2503.	1.6	6
92	Spinodal decomposition in alkali feldspar studied by atom probe tomography. Physics and Chemistry of Minerals, 2020, 47, 30.	0.8	6
93	Metasomatic coronas around hornblendite xenoliths in granulite facies marble, Ivrea zone, N Italy. II: Oxygen isotope patterns. Contributions To Mineralogy and Petrology, 2001, 141, 494-504.	3.1	5
94	Garnet reaction rims from the breakdown of Staurolite in polymetamorphic micashists from the Rappold complex, Austroalpine basement, Eastern Alps. Mineralogy and Petrology, 2009, 97, 189-201.	1.1	5
95	Structure evolution of h.c.p./c.c.p. metal oxide interfaces in solid-state reactions. Acta Crystallographica Section A: Foundations and Advances, 2018, 74, 466-480.	0.1	5
96	Microstructural and textural evolution of calcite deformed to high shear strain by high-pressure torsion. Journal of Structural Geology, 2019, 118, 32-47.	2.3	5
97	Determining the origin of inclusions in garnet: Challenges and new diagnostic criteria. Numerische Mathematik, 2020, 320, 753-789.	1.4	5
98	Modeling the role of sources and sinks for vacancies on the kinetics of diffusive phase transformation in binary systems with several stoichiometric phases. Philosophical Magazine Letters, 2012, 92, 67-76.	1.2	4
99	Evolution of chemically induced cracks in alkali feldspar: thermodynamic analysis. Physics and Chemistry of Minerals, 2022, 49, 14.	0.8	4
100	Carbonatite-melilitite-phosphate immiscible melts from the aragonite stability field entrained from the mantle by a Pliocene basalt. Mineralogy and Petrology, 0, , .	1.1	4
101	Oriented feldspar-feldspathoid intergrowths in rocks of the Khibiny massif: genetic implications. Mineralogy and Petrology, 2012, 106, 1-17.	1.1	3
102	The effect of H2O fluid on relative component mobilities in a bimineralic reaction rim in the system CaOâ€“MgOâ€“SiO2. European Journal of Mineralogy, 2019, 31, 61-72.	1.3	3
103	Multicomponent diffusion in ionic crystals: theoretical model and application to combined tracer- and interdiffusion in alkali feldspar. Physics and Chemistry of Minerals, 2020, 47, 35.	0.8	3
104	Ca-rich garnets and associated symplectites in mafic peraluminous granulites from the GfÃ¶hl Nappe System, Austria. Solid Earth, 2018, 9, 797-819.	2.8	2
105	On an alternative approach for simulating chemically induced crack pattern evolutions in a single crystal. International Journal of Solids and Structures, 2020, 202, 575-586.	2.7	2
106	Compositional, structural and vibrational spectroscopic characteristics of feldspar megacrysts in alkali basalts from southern Slovakia. Journal of Geosciences (Czech Republic), 2018, , 215-226.	0.6	2
107	Stable isotope systematics in the monzoni contact aureole, N-tialy. Science Bulletin, 1998, 43, 1-1.	1.7	1
108	Geometry of stable isotope fronts: Multiple monitors and tracers. Science Bulletin, 1998, 43, 1-1.	1.7	1

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109	Synthesis and Mechanical Testing of Calcium Aluminosilicoferrite Crystals with High Alumina Content. Metals, 2019, 9, 906.	2.3	1
110	Effect of alumina and silica content in the calcium aluminosilicoferrite Ca2(Ca,Fe,Mg)6(Fe,Si,Al)6O20 bonding phase on the strength of iron ore sinter. Materials Chemistry and Physics, 2021, 257, 123733.	4.0	1
111	Diffusion: Some mathematical foundations and applications in mineralogy. , 2017, , 255-294.		1
112	Isotopic Disequilibrium During Metasomatic Vein Formation. Mineralogical Magazine, 1994, 58A, 1-2.	1.4	1
113	THERMAL METAMORPHISM. , 2005, , 499-502.		0
114	An Improved FIB Sample Preparation Technique for Site-specific Plan-view Specimens: A New Cutting Geometry. Microscopy and Microanalysis, 2018, 24, 824-825.	0.4	0