

James A D Connolly

List of Publications by Year in descending order

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122
papers

14,165
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16437

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docs citations

127
times ranked

7161
citing authors

#	ARTICLE	IF	CITATIONS
1	Computation of phase equilibria by linear programming: A tool for geodynamic modeling and its application to subduction zone decarbonation. <i>Earth and Planetary Science Letters</i> , 2005, 236, 524-541.	1.8	1,728
2	The geodynamic equation of state: What and how. <i>Geochemistry, Geophysics, Geosystems</i> , 2009, 10, .	1.0	776
3	Multivariable phase diagrams; an algorithm based on generalized thermodynamics. <i>Numerische Mathematik</i> , 1990, 290, 666-718.	0.7	763
4	Serpentine and the subduction zone water cycle. <i>Earth and Planetary Science Letters</i> , 2004, 223, 17-34.	1.8	641
5	Metamorphic devolatilization of subducted marine sediments and the transport of volatiles into the Earth's mantle. <i>Nature</i> , 2001, 411, 293-296.	13.7	405
6	Metamorphic devolatilization of subducted oceanic metabasalts: implications for seismicity, arc magmatism and volatile recycling. <i>Earth and Planetary Science Letters</i> , 2001, 189, 19-29.	1.8	390
7	An automated strategy for calculation of phase diagram sections and retrieval of rock properties as a function of physical conditions. <i>Journal of Metamorphic Geology</i> , 2002, 20, 697-708.	1.6	309
8	A thermodynamic model for titanium and ferric iron solution in biotite. <i>Journal of Metamorphic Geology</i> , 2009, 27, 153-165.	1.6	296
9	Melting of the continental crust: Some thermal and petrological constraints on anatexis in continental collision zones and other tectonic settings. <i>Journal of Geophysical Research</i> , 1995, 100, 15565-15579.	3.3	277
10	C-O-H-S fluid composition and oxygen fugacity in graphitic metapelites. <i>Journal of Metamorphic Geology</i> , 1993, 11, 379-388.	1.6	267
11	Modeling open system metamorphic decarbonation of subducting slabs. <i>Geochemistry, Geophysics, Geosystems</i> , 2006, 7, n/a-n/a.	1.0	230
12	Why is terrestrial subduction one-sided?. <i>Geology</i> , 2008, 36, 43.	2.0	221
13	Compaction-driven fluid flow in viscoelastic rock. <i>Geodinamica Acta</i> , 1998, 11, 55-84.	2.2	214
14	Integrated geophysical&petrological modeling of the lithosphere and sublithospheric upper mantle: Methodology and applications. <i>Geochemistry, Geophysics, Geosystems</i> , 2008, 9, .	1.0	200
15	Devolatilization-generated fluid pressure and deformation-propagated fluid flow during prograde regional metamorphism. <i>Journal of Geophysical Research</i> , 1997, 102, 18149-18173.	3.3	199
16	Can we constrain the interior structure of rocky exoplanets from mass and radius measurements?. <i>Astronomy and Astrophysics</i> , 2015, 577, A83.	2.1	199
17	How contact metamorphism can trigger global climate changes: Modeling gas generation around igneous sills in sedimentary basins. <i>Geochimica Et Cosmochimica Acta</i> , 2010, 74, 7179-7195.	1.6	194
18	Seismic implications of mantle wedge plumes. <i>Physics of the Earth and Planetary Interiors</i> , 2006, 156, 59-74.	0.7	190

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19	Are the regional variations in Central American arc lavas due to differing basaltic versus peridotitic slab sources of fluids?. <i>Geology</i> , 2002, 30, 1035.	2.0	174
20	Titanium in phengite: a geobarometer for high temperature eclogites. <i>Contributions To Mineralogy and Petrology</i> , 2010, 159, 1-24.	1.2	172
21	An algorithm and computer program for calculating composition phase diagrams. <i>Calphad: Computer Coupling of Phase Diagrams and Thermochemistry</i> , 1987, 11, 1-55.	0.7	163
22	Characterization of polymetamorphism in the Austroalpine basement east of the Tauern Window using garnet isopleth thermobarometry. <i>Journal of Metamorphic Geology</i> , 2006, 24, 451-475.	1.6	153
23	Tschermak's substitution in antigorite and consequences for phase relations and water liberation in high-grade serpentinites. <i>Lithos</i> , 2013, 178, 186-196.	0.6	153
24	Numerical modelling of crustal growth in intraoceanic volcanic arcs. <i>Physics of the Earth and Planetary Interiors</i> , 2008, 171, 336-356.	0.7	146
25	Subduction of ophiocarbonates and recycling of CO ₂ and H ₂ O. <i>Geology</i> , 1998, 26, 375.	2.0	143
26	Serpentinization of oceanic peridotites: Implications for geochemical cycles and biological activity. <i>Geophysical Monograph Series</i> , 2004, , 119-136.	0.1	137
27	Metamorphic controls on seismic velocity of subducted oceanic crust at 100-250 km depth. <i>Earth and Planetary Science Letters</i> , 2002, 204, 61-74.	1.8	133
28	Temperature-dependent viscoelastic compaction and compartmentalization in sedimentary basins. <i>Tectonophysics</i> , 2000, 324, 137-168.	0.9	129
29	3D multiobservable probabilistic inversion for the compositional and thermal structure of the lithosphere and upper mantle. I: <i>a priori</i> petrological information and geophysical observables. <i>Journal of Geophysical Research: Solid Earth</i> , 2013, 118, 2586-2617.	1.4	121
30	Joint inversion of seismic and gravity data for lunar composition and thermal state. <i>Geophysical Journal International</i> , 2007, 168, 243-258.	1.0	119
31	Physical controls of magmatic productivity at Pacific-type convergent margins: Numerical modelling. <i>Physics of the Earth and Planetary Interiors</i> , 2007, 163, 209-232.	0.7	117
32	The influence of MORB and harzburgite composition on thermo-chemical mantle convection in a 3-D spherical shell with self-consistently calculated mineral physics. <i>Earth and Planetary Science Letters</i> , 2010, 296, 403-412.	1.8	117
33	The Mechanics of Metamorphic Fluid Expulsion. <i>Elements</i> , 2010, 6, 165-172.	0.5	114
34	Fluid and enthalpy production during regional metamorphism. <i>Contributions To Mineralogy and Petrology</i> , 1989, 102, 347-366.	1.2	113
35	Decompaction weakening and channeling instability in ductile porous media: Implications for asthenospheric melt segregation. <i>Journal of Geophysical Research</i> , 2007, 112, .	3.3	112
36	Three-dimensional dynamics of hydrous thermal-chemical plumes in oceanic subduction zones. <i>Geochemistry, Geophysics, Geosystems</i> , 2009, 10, .	1.0	112

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37	Element Partitioning: The Role of Melt Structure and Composition. <i>Science</i> , 2006, 312, 1646-1650.	6.0	108
38	LitMod3D: An interactive 3D software to model the thermal, compositional, density, seismological, and rheological structure of the lithosphere and sublithospheric upper mantle. <i>Geochemistry, Geophysics, Geosystems</i> , 2009, 10, .	1.0	107
39	Role of chemical processes on shear zone formation: an example from the Grimsel metagranodiorite (Aar massif, Central Alps). <i>Journal of Metamorphic Geology</i> , 2012, 30, 703-722.	1.6	102
40	Phase diagram methods for graphitic rocks and application to the system $\text{CaO}-\text{H}_2\text{O}-\text{FeO}-\text{TiO}_2-\text{SiO}_2$. <i>Contributions To Mineralogy and Petrology</i> , 1995, 119, 94-116.	1.2	100
41	Origin of the martian dichotomy and Tharsis from a giant impact causing massive magmatism. <i>Icarus</i> , 2011, 215, 346-357.	1.1	99
42	Petrology of titanian clinohumite and olivine at the high-pressure breakdown of antigorite serpentinite to chlorite harzburgite (Almirez Massif, S. Spain). <i>Contributions To Mineralogy and Petrology</i> , 2005, 149, 627-646.	1.2	97
43	Permeability of asthenospheric mantle and melt extraction rates at mid-ocean ridges. <i>Nature</i> , 2009, 462, 209-212.	13.7	97
44	A Geophysical Perspective on the Bulk Composition of Mars. <i>Journal of Geophysical Research E: Planets</i> , 2018, 123, 575-611.	1.5	97
45	Effect of mineral phase transitions on sedimentary basin subsidence and uplift. <i>Earth and Planetary Science Letters</i> , 2005, 233, 213-228.	1.8	93
46	Constraining the composition and thermal state of the mantle beneath Europe from inversion of long-period electromagnetic sounding data. <i>Journal of Geophysical Research</i> , 2006, 111, .	3.3	93
47	Retrogressed eclogite (20kbar, 1020°C) from the Neoproterozoic Palghat-Cauvery suture zone, southern India. <i>Precambrian Research</i> , 2009, 171, 23-36.	1.2	93
48	Implications for metal and volatile cycles from the pH of subduction zone fluids. <i>Nature</i> , 2016, 539, 420-424.	13.7	93
49	A fluid-pressure feedback model of dehydration reactions: experiments, modelling, and application to subduction zones. <i>Tectonophysics</i> , 2003, 370, 241-251.	0.9	91
50	Growth and mixing dynamics of mantle wedge plumes. <i>Geology</i> , 2007, 35, 587.	2.0	91
51	Dynamics of double subduction: Numerical modeling. <i>Physics of the Earth and Planetary Interiors</i> , 2008, 171, 280-295.	0.7	90
52	Geophysical evidence for melt in the deep lunar interior and implications for lunar evolution. <i>Journal of Geophysical Research E: Planets</i> , 2014, 119, 2197-2221.	1.5	89
53	Petrogenetic grids for metacarbonate rocks: pressure-temperature phase-diagram projection for mixed-volatile systems. <i>Contributions To Mineralogy and Petrology</i> , 1991, 108, 93-105.	1.2	87
54	Fluid flow in compressive tectonic settings: Implications for midcrustal seismic reflectors and downward fluid migration. <i>Journal of Geophysical Research</i> , 2004, 109, .	3.3	86

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55	Grain-scale pressure variations and chemical equilibrium in high-grade metamorphic rocks. <i>Journal of Metamorphic Geology</i> , 2014, 32, 195-207.	1.6	80
56	Reaction-induced microcracking: An experimental investigation of a mechanism for enhancing anatexis melt extraction. <i>Geology</i> , 1997, 25, 591.	2.0	79
57	3D multi-observable probabilistic inversion for the compositional and thermal structure of the lithosphere and upper mantle. II: General methodology and resolution analysis. <i>Journal of Geophysical Research: Solid Earth</i> , 2013, 118, 1650-1676.	1.4	78
58	Constraining the composition and thermal state of Mars from inversion of geophysical data. <i>Journal of Geophysical Research</i> , 2008, 113, .	3.3	76
59	Incorporating self-consistently calculated mineral physics into thermochemical mantle convection simulations in a 3D spherical shell and its influence on seismic anomalies in Earth's mantle. <i>Geochemistry, Geophysics, Geosystems</i> , 2009, 10, .	1.0	76
60	Subducting serpentinites release reduced, not oxidized, aqueous fluids. <i>Scientific Reports</i> , 2019, 9, 19573.	1.6	73
61	Hydrous Phase Relations and Trace Element Partitioning Behaviour in Calcareous Sediments at Subduction-Zone Conditions. <i>Journal of Petrology</i> , 2015, 56, 953-980.	1.1	70
62	Electrolytic fluid speciation by Gibbs energy minimization and implications for subduction zone mass transfer. <i>Earth and Planetary Science Letters</i> , 2018, 501, 90-102.	1.8	69
63	The solubility of rocks in metamorphic fluids: A model for rock-dominated conditions to upper mantle pressure and temperature. <i>Earth and Planetary Science Letters</i> , 2015, 430, 486-498.	1.8	68
64	Are the Earth and the Moon compositionally alike? Inferences on lunar composition and implications for lunar origin and evolution from geophysical modeling. <i>Journal of Geophysical Research</i> , 2006, 111, .	3.3	67
65	Thermochemical interpretation of one-dimensional seismic reference models for the upper mantle: evidence for bias due to heterogeneity. <i>Geophysical Journal International</i> , 2008, 175, 627-648.	1.0	66
66	GeoPS: An interactive visual computing tool for thermodynamic modelling of phase equilibria. <i>Journal of Metamorphic Geology</i> , 2022, 40, 243-255.	1.6	64
67	A coupled petrological-tectonic model for sedimentary basin evolution: the influence of metamorphic reactions on basin subsidence. <i>Terra Nova</i> , 2002, 13, 354-359.	0.9	63
68	Migration of metamorphic fluid: some aspects of mass and heat transfer. <i>Earth-Science Reviews</i> , 1992, 32, 107-121.	4.0	59
69	Thermochemical interpretation of 1D seismic data for the lower mantle: The significance of nonadiabatic thermal gradients and compositional heterogeneity. <i>Journal of Geophysical Research</i> , 2009, 114, .	3.3	57
70	Extreme Crustal Metamorphism during a Neoproterozoic Event in Sri Lanka: A Study of Dry Mafic Granulites. <i>Journal of Geology</i> , 2007, 115, 563-582.	0.7	56
71	Metamorphic fluids and anomalous porosities in the lower crust. <i>Tectonophysics</i> , 1990, 182, 47-55.	0.9	55
72	Strength of (Mg,Fe)2SiO4 wadsleyite determined by relaxation of transformation stress. <i>Physics of the Earth and Planetary Interiors</i> , 2000, 120, 63-78.	0.7	53

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73	Diffusion-controlled development of silica-undersaturated domains in felsic granulites of the Bohemian Massif (Variscan belt of Central Europe). <i>Contributions To Mineralogy and Petrology</i> , 2006, 153, 237-250.	1.2	52
74	Variability of subducting slab morphologies in the mantle transition zone: Insight from petrological-thermomechanical modeling. <i>Earth-Science Reviews</i> , 2019, 196, 102874.	4.0	49
75	Constraining the composition and thermal state of the moon from an inversion of electromagnetic lunar day-side transfer functions. <i>Earth and Planetary Science Letters</i> , 2006, 248, 579-598.	1.8	48
76	Correlation of Growth and Breakdown of Major and Accessory Minerals in Metapelites from Campolungo, Central Alps. <i>Journal of Petrology</i> , 2011, 52, 2293-2334.	1.1	46
77	An analytical solution for solitary porosity waves: dynamic permeability and fluidization of nonlinear viscous and viscoplastic rock. <i>Geofluids</i> , 2015, 15, 269-292.	0.3	46
78	Large-scale rigid-body rotation in the mantle wedge and its implications for seismic tomography. <i>Geochemistry, Geophysics, Geosystems</i> , 2006, 7, n/a-n/a.	1.0	45
79	On mantle chemical and thermal heterogeneities and anisotropy as mapped by inversion of global surface wave data. <i>Journal of Geophysical Research</i> , 2009, 114, .	3.3	45
80	Thermodynamic modelling of Cr-bearing garnets with implications for diamond inclusions and peridotite xenoliths. <i>Lithos</i> , 2009, 112, 986-991.	0.6	43
81	Inversion of seismic and geodetic data for the major element chemistry and temperature of the Earth's mantle. <i>Journal of Geophysical Research</i> , 2008, 113, .	3.3	40
82	Numerical modelling of spontaneous slab breakoff dynamics during continental collision. <i>Geological Society Special Publication</i> , 2010, 332, 99-114.	0.8	40
83	Constraints on phase diagram topology for the system CaO?MgO?SiO2?CO2?H2O. <i>Contributions To Mineralogy and Petrology</i> , 1990, 104, 1-7.	1.2	38
84	Potential causes for the non-Newtonian rheology of crystal-bearing magmas. <i>Geochemistry, Geophysics, Geosystems</i> , 2011, 12, .	1.0	37
85	Metamorphic CO ₂ production from calc-silicate rocks via garnet-forming reactions in the CFAS-H ₂ O-CO ₂ system. <i>Contributions To Mineralogy and Petrology</i> , 2013, 166, 1655-1675.	1.2	35
86	A Hydromechanical Model for Lower Crustal Fluid Flow. <i>Lecture Notes in Earth System Sciences</i> , 2013, , 599-658.	0.5	35
87	Natural moissanite (SiC) – a low temperature mineral formed from highly fractionated ultra-reducing COH-fluids. <i>Progress in Earth and Planetary Science</i> , 2014, 1, .	1.1	35
88	(De)compaction of porous viscoelastoplastic media: Solitary porosity waves. <i>Journal of Geophysical Research: Solid Earth</i> , 2015, 120, 4843-4862.	1.4	35
89	Uncertainty of mantle geophysical properties computed from phase equilibrium models. <i>Geophysical Research Letters</i> , 2016, 43, 5026-5034.	1.5	35
90	Growth of myrmekite coronas by contact metamorphism of granitic mylonites in the aureole of Cima di Vila, Eastern Alps, Italy. <i>Journal of Metamorphic Geology</i> , 2002, 20, 203-213.	1.6	34

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91	Melting of siderite to 20GPa and thermodynamic properties of FeCO ₃ -melt. <i>Chemical Geology</i> , 2015, 400, 34-43.	1.4	34
92	Mapping the Earth's thermochemical and anisotropic structure using global surface wave data. <i>Journal of Geophysical Research</i> , 2011, 116, .	3.3	33
93	Effects of chemical composition, water and temperature on physical properties of continental crust. <i>Geochemistry, Geophysics, Geosystems</i> , 2015, 16, 2431-2449.	1.0	33
94	Lead transport in intra-oceanic subduction zones: 2D geochemicalâ€“thermo-mechanical modeling of isotopic signatures. <i>Lithos</i> , 2014, 208-209, 265-280.	0.6	32
95	Reactions and physical conditions during metamorphism of Liassic aluminous black shales and marls in central Switzerland. <i>European Journal of Mineralogy</i> , 2002, 14, 647-672.	0.4	31
96	Phase relations, singularities and thermobarometry of metamorphic assemblages containing phengite, chlorite, biotite, K-feldspar, quartz and H ₂ O. <i>Contributions To Mineralogy and Petrology</i> , 2000, 139, 555-569.	1.2	27
97	Compactionâ€“Driven Fluid Localization as an Explanation for Lower Crustal Electrical Conductors in an Intracontinental Setting. <i>Geophysical Research Letters</i> , 2020, 47, e2020GL088455.	1.5	26
98	Geological evidence and modeling of melt migration by porosity waves in the sub-arc mantle of Kohistan (Pakistan). <i>Geology</i> , 2011, 39, 1091-1094.	2.0	25
99	Ultra-reducing conditions in average mantle peridotites and in podiform chromitites: a thermodynamic model for moissanite (SiC) formation. <i>Contributions To Mineralogy and Petrology</i> , 2016, 171, 1.	1.2	25
100	Seismo-hydro-mechanical modelling of the seismic cycle: Methodology and implications for subduction zone seismicity. <i>Tectonophysics</i> , 2020, 791, 228504.	0.9	25
101	Fluid-mediated selective dissolution of subducting carbonaceous material: Implications for carbon recycling and fluid fluxes at forearc depths. <i>Chemical Geology</i> , 2020, 549, 119682.	1.4	25
102	Metamorphism and phase relations in carbonate rocks from the Nevado-FilÃ¡bride Complex (Cordilleras BÃ©ticas, Spain): application of the Ttn + Rt + Cal + Qtz + Gr buffer. <i>Contributions To Mineralogy and Petrology</i> , 1997, 126, 292-302.	1.2	23
103	P-T estimates and timing of the sapphirine-bearing metamorphic overprint in kyanite eclogites from Central Rhodope, northern Greece. <i>Petrology</i> , 2013, 21, 507-521.	0.2	22
104	Mid-Crustal Focused Fluid Movement: Thermal Consequences and Silica Transport. , 1997, , 235-250.		22
105	Radial 1â€“ seismic structures in the deep mantle in mantle convection simulations with selfâ€“consistently calculated mineralogy. <i>Geochemistry, Geophysics, Geosystems</i> , 2012, 13, .	1.0	21
106	An experimental study of the role of shear deformation on partial melting of a synthetic metapelite. <i>Tectonophysics</i> , 2011, 503, 92-99.	0.9	20
107	Physical contradictions and remedies using simple polythermal equations of state. <i>American Mineralogist</i> , 2009, 94, 1616-1619.	0.9	19
108	A primer in gibbs energy minimization for geophysicists. <i>Petrology</i> , 2017, 25, 526-534.	0.2	16

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109	Direct numerical simulation of two-phase flow: Effective rheology and flow patterns of particle suspensions. <i>Earth and Planetary Science Letters</i> , 2010, 290, 1-12.	1.8	15
110	Incorporating metamorphism in geodynamic models: the mass conservation problem. <i>Geophysical Journal International</i> , 2011, 186, 6-10.	1.0	15
111	Precalculated phase equilibrium models for geophysical properties of the crust and mantle as a function of composition. <i>Geochemistry, Geophysics, Geosystems</i> , 2011, 12, .	1.0	12
112	PreMDB, a thermodynamically consistent material database as a key to geodynamic modelling. <i>Acta Geotechnica</i> , 2009, 4, 107-115.	2.9	10
113	Liquid-vapor phase relations in the SiO system: A calorically constrained van der Waals-type model. <i>Journal of Geophysical Research E: Planets</i> , 2016, 121, 1641-1666.	1.5	10
114	Bulk properties and near-critical behaviour of SiO ₂ fluid. <i>Earth and Planetary Science Letters</i> , 2018, 491, 11-20.	1.8	10
115	Melting relations in the system FeCO ₃ -MgCO ₃ and thermodynamic modelling of Fe-Mg carbonate melts. <i>Contributions To Mineralogy and Petrology</i> , 2016, 171, 1.	1.2	8
116	Serpentinite dehydration at low pressures. <i>Swiss Journal of Geosciences</i> , 2022, 115, .	0.5	5
117	VERTEXVIEW: An interactive program to analyze and plot petrological phase diagrams. <i>Computers and Geosciences</i> , 1997, 23, 883-888.	2.0	4
118	Notes on the creation and manipulation of solid solution models. <i>Contributions To Mineralogy and Petrology</i> , 2021, 176, 1.	1.2	4
119	Relationships Between Seismic Wave-Speed, Density, and Electrical Conductivity Beneath Australia from Seismology, Mineralogy, and Laboratory-Based Conductivity Profiles. , 2015, , 145-171.		3
120	Reply to discussion of "Crustal fluid contamination in the Bushveld Complex, South Africa: an analogue for subduction zone fluid migration" by Roger Scoon and Andrew Mitchell (2020). <i>International Geology Review</i> , 2020, , 1-6.	1.1	3
121	Crustal fluid contamination in the Bushveld Complex, South Africa: An analogue for subduction zone fluid migration. <i>International Geology Review</i> , 2021, 63, 1838-1862.	1.1	2
122	An Algorithm for Thermodynamic Parameter Optimization: Application to the Martian Mantle. <i>Geochemistry, Geophysics, Geosystems</i> , 2021, 22, e2020GC009399.	1.0	2