Alexandra Navrotsky

List of Publications by Citations

607 papers	24,189 citations	71 h-index	129 g-index
633 ext. papers	26,620 ext. citations	5.4 avg, IF	7.36 L-index

#	Paper	IF	Citations
607	CRYSTAL GROWTH. Crystallization by particle attachment in synthetic, biogenic, and geologic environments. *Science*, **2015**, 349, aaa6760	33.3	1035
606	Surface Energies and Thermodynamic Phase Stability in Nanocrystalline Aluminas. *Science*, **1997**, 277, 788-791	33.3	759
605	Size-driven structural and thermodynamic complexity in iron oxides. *Science*, **2008**, 319, 1635-8	33.3	544
604	The thermodynamics of cation distributions in simple spinels. *Journal of Inorganic and Nuclear Chemistry*, **1967**, 29, 2701-2714		476
603	Energetics of nanocrystalline TiO2. *Proceedings of the National Academy of Sciences of the United States of America*, **2002**, 99 Suppl 2, 6476-81	11.5	442
602	Olivine-modified spinel-spinel transitions in the system Mg2SiO4-Fe2SiO4: Calorimetric measurements, thermochemical calculation, and geophysical application. *Journal of Geophysical Research*, **1989**, 94, 15671-15685		440
601	Progress and new directions in high temperature calorimetry revisited. *Physics and Chemistry of Minerals*, **1997**, 24, 222-241	1.6	424
600	Energetic clues to pathways to biomineralization: precursors, clusters, and nanoparticles. *Proceedings of the National Academy of Sciences of the United States of America*, **2004**, 101, 12096-101	11.5	403
599	Progress and new directions in high temperature calorimetry. *Physics and Chemistry of Minerals*, **1977**, 2, 89-104	1.6	380
598	Nuclear fuel in a reactor accident. *Science*, **2012**, 335, 1184-8	33.3	328
597	Radiation Effects in Glasses Used for Immobilization of High-level Waste and Plutonium Disposition. *Journal of Materials Research*, **1997**, 12, 1948-1978	2.5	323
596	Transformation and crystallization energetics of synthetic and biogenic amorphous calcium carbonate. *Proceedings of the National Academy of Sciences of the United States of America*, **2010**, 107, 16438-43	11.5	318
595	Thermodynamics of formation of simple spinels. *Journal of Inorganic and Nuclear Chemistry*, **1968**, 30, 479-498		270
594	Direct calorimetric verification of thermodynamic instability of lead halide hybrid perovskites. *Proceedings of the National Academy of Sciences of the United States of America*, **2016**, 113, 7717-21	11.5	256
593	Nanophase transition metal oxides show large thermodynamically driven shifts in oxidation-reduction equilibria. *Science*, **2010**, 330, 199-201	33.3	252
592	Materials Science of High-Level Nuclear Waste Immobilization. *MRS Bulletin*, **2009**, 34, 46-53	3.2	233
591	Energy Crossovers in Nanocrystalline Zirconia. *Journal of the American Ceramic Society*, **2004**, 88, 160-163	3.8	224

590	Effects of Increased Surface Area and Chemisorbed H2O on the Relative Stability of Nanocrystalline □Al2O3 and □-Al2O3. *Journal of Physical Chemistry B*, **1997**, 101, 603-613	3.4	223
589	Energetics of nanoparticle oxides: interplay between surface energy and polymorphism□ *Geochemical Transactions*, **2003**, 4, 1	3	223
588	Polymer-derived SiCN and SiOC ceramics □structure and energetics at the nanoscale. *Journal of Materials Chemistry A*, **2013**, 1, 3826	13	207
587	Thermochemistry of rare-earth orthophosphates. *Journal of Materials Research*, **2001**, 16, 2623-2633	2.5	196
586	Stability of peroxide-containing uranyl minerals. *Science*, **2003**, 302, 1191-3	33.3	184
585	Thermochemistry of Pure-Silica Zeolites. *Journal of Physical Chemistry B*, **2000**, 104, 10001-10011	3.4	175
584	Heat capacities and thermodynamic functions of TiO2 anatase and rutile: Analysis of phase stability. *American Mineralogist*, **2009**, 94, 236-243	2.9	172
583	Thermochemical evidence for strong iodine chemisorption by ZIF-8. *Journal of the American Chemical Society*, **2013**, 135, 16256-9	16.4	163
582	Negative Pressure-Temperature Slopes for Reactions Formign MgSiO3 Perovskite from Calorimetry. *Science*, **1990**, 249, 1275-8	33.3	162
581	TiO2 Stability Landscape: Polymorphism, Surface Energy, and Bound Water Energetics. *Chemistry of Materials*, **2006**, 18, 6324-6332	9.6	161
580	Structural and thermodynamic limits of layer thickness in 2D halide perovskites. *Proceedings of the National Academy of Sciences of the United States of America*, **2019**, 116, 58-66	11.5	152
579	Effect of structure and thermodynamic stability on the response of lanthanide stannate pyrochlores to ion beam irradiation. *Journal of Physical Chemistry B*, **2006**, 110, 2343-50	3.4	150
578	Formation enthalpies of rare earth titanate pyrochlores. *Journal of Solid State Chemistry*, **2004**, 177, 1858-1866	3.3	139
577	Thermochemistry of microporous and mesoporous materials. *Chemical Reviews*, **2009**, 109, 3885-902	68.1	137
576	Nanoscale effects on thermodynamics and phase equilibria in oxide systems. *ChemPhysChem*, **2011**, 12, 2207-15	3.2	135
575	Crystallization in hafnia- and zirconia-based systems. *Physica Status Solidi (B): Basic Research*, **2004**, 241, 2268-2278	1.3	134
574	Direct measurements of water adsorption enthalpy on hafnia and zirconia. *Applied Physics Letters*, **2005**, 87, 164103	3.4	134
573	Progress and New Directions in Calorimetry: A 2014 Perspective. *Journal of the American Ceramic Society*, **2014**, 97, 3349-3359	3.8	133

572	Thermochemistry of glasses and liquids in the systems CaMgSi2O6-CaAl2Si2O8-NaAlSi3O8, SiO2-CaAl2Si2O8-NaAlSi3O8 and SiO2-Al2O3-CaO-Na2O. *Geochimica Et Cosmochimica Acta*, **1980**, 44, 1409-1423	5.5	131
571	29Si and 13C Solid-State NMR Spectroscopic Study of Nanometer-Scale Structure and Mass Fractal Characteristics of Amorphous Polymer Derived Silicon Oxycarbide Ceramics. *Chemistry of Materials*, **2010**, 22, 6221-6228	9.6	130
570	Direct calorimetric measurement of enthalpy of adsorption of carbon dioxide on CD-MOF-2, a green metal-organic framework. *Journal of the American Chemical Society*, **2013**, 135, 6790-3	16.4	120
569	Thermochemistry of Charge-Coupled Substitutions in Silicate Glasses: The Systems Ml/nn+ AlO2-SiO2 (M = Li, Na, K, Rb, Cs, Mg, Ca, Sr, Ba, Pb). *Journal of the American Ceramic Society*, **1984**, 67, 606-610	3.8	118
568	Enthalpy of the Anatase-Rutile Transformation. *Journal of the American Ceramic Society*, **1967**, 50, 626-626	3.8	118
567	Thermodynamic Properties of Manganese Oxides. *Journal of the American Ceramic Society*, **1996**, 79, 1761-1768	3.8	117
566	Quantitative correlations of deviations from ideality in binary and pseudobinary solid solutions. *Journal of Solid State Chemistry*, **1983**, 46, 1-22	3.3	113
565	Energetics and Crystal Chemical Systematics among Ilmenite, Lithium Niobate, and Perovskite Structures. *Chemistry of Materials*, **1998**, 10, 2787-2793	9.6	112
564	A Calorimetric Study of the Lanthanide Aluminum Oxides and the Lanthanide Gallium Oxides: Stability of the Perovskites and the Garnets. *Journal of Solid State Chemistry*, **1998**, 141, 424-436	3.3	111
563	Uranyl peroxide enhanced nuclear fuel corrosion in seawater. *Proceedings of the National Academy of Sciences of the United States of America*, **2012**, 109, 1874-7	11.5	109
562	Thermochemical insights into refractory ceramic materials based on oxides with large tetravalent cations. *Journal of Materials Chemistry*, **2005**, 15, 1883		109
561	Amorphous Alumina Nanoparticles: Structure, Surface Energy, and Thermodynamic Phase Stability. *Journal of Physical Chemistry C*, **2013**, 117, 17123-17130	3.8	106
560	Thermodynamics of Fe oxides: Part II. Enthalpies of formation and relative stability of goethite (□-FeOOH), lepidocrocite (□FeOOH), and maghemite (□Fe2O3). *American Mineralogist*, **2003**, 88, 855-859	2.9	105
559	Energetics of compounds (A2+B4+O3) with the perovskite structure. *Journal of Solid State Chemistry*, **1988**, 72, 244-256	3.3	103
558	Thermodynamically Stable SixOyCz Polymer-Like Amorphous Ceramics. *Journal of the American Ceramic Society*, **2007**, 90, 3213-3219	3.8	101
557	Study on Synthesis of TPA-Silicalite-1 from Initially Clear Solutions of Various Base Concentrations by in Situ Calorimetry, Potentiometry, and SAXS. *Chemistry of Materials*, **2004**, 16, 210-219	9.6	98
556	Thermochemistry of zeolitic imidazolate frameworks of varying porosity. *Journal of the American Chemical Society*, **2013**, 135, 598-601	16.4	97
555	Enthalpy of formation of LiNiO2, LiCoO2 and their solid solution, LiNi1□CoxO2. *Solid State Ionics*, **2004**, 166, 167-173	3.3	93

554	Surface Enthalpy, Enthalpy of Water Adsorption, and Phase Stability in Nanocrystalline Monoclinic Zirconia. *Journal of the American Ceramic Society*, **2009**, 92, 133-140	3.8	90
553	Monoclinic to tetragonal transformations in hafnia and zirconia: A combined calorimetric and density functional study. *Physical Review B*, **2009**, 80,	3.3	89
552	Thermochemistry of Sodium Borosilicate Glasses. *Journal of the American Ceramic Society*, **1985**, 68, 314-319	3.8	88
551	Energetic basis of catalytic activity of layered nanophase calcium manganese oxides for water oxidation. *Proceedings of the National Academy of Sciences of the United States of America*, **2013**, 110, 8801-6	11.5	86
550	Structure, Heat Capacity, and High-Temperature Thermal Properties of Yb14Mn1−xAlxSb11. *Chemistry of Materials*, **2009**, 21, 1354-1360	9.6	84
549	Surface Energy and Thermodynamic Stability of α-Alumina: Effect of Dopants and Water. *Chemistry of Materials*, **2006**, 18, 1867-1872	9.6	84
548	MANTLE GEOCHEMISTRY:Enhanced: A Lesson from Ceramics. *Science*, **1999**, 284, 1788-1789	33.3	84
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543	Structural Evolution of Alkoxide Silica Gels to Glass: Effect of Catalyst pH. *Journal of the American Ceramic Society*, **1993**, 76, 2571-2582	3.8	79
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541	Energetics of Bulk and Nano-Akaganeite, β-FeOOH: Enthalpy of Formation, Surface Enthalpy, and Enthalpy of Water Adsorption. *Chemistry of Materials*, **2006**, 18, 1830-1838	9.6	77
540	Energetics of binary iron nitrides. *Solid State Sciences*, **2000**, 2, 457-462	3.4	74
539	Energetics of Cubic and Monoclinic Yttrium Oxide Polymorphs: Phase Transitions, Surface Enthalpies, and Stability at the Nanoscale. *Journal of Physical Chemistry C*, **2008**, 112, 932-938	3.8	73
538	Enthalpies of formation of Ce-pyrochlore, Ca0.93Ce1.00Ti2.035O7.00, U-pyrochlore, Ca1.46U4+0.23U6+0.46Ti1.85O7.00 and Gd-pyrochlore, Gd2Ti2O7: three materials relevant to the proposed waste form for excess weapons plutonium. *Journal of Nuclear Materials*, **2002**, 303, 226-239	3.3	73
537	Effect of La and Y on Crystallization Temperatures of Hafnia and Zirconia. *Journal of Materials Research*, **2004**, 19, 693-696	2.5	72

536	Grain Growth-Controlled Giant Permittivity in Soft Chemistry CaCu3Ti4O12 Ceramics. *Journal of the American Ceramic Society*, **2008**, 91, 485-489	3.8	71
535	The assessment of thermodynamic parameters in the Al2O3-Y2O3 system and phase relations in the Y-Al-O system. *Scandinavian Journal of Metallurgy*, **2001**, 30, 175-183		71
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533	Enthalpies of formation of LaMO3 perovskites (M = Cr, Fe, Co, and Ni). *Journal of Materials Research* , **2005**, 20, 191-200	2.5	69
532	Thermodynamics of formation of the silicates and germanates of some divalent transition metals and of magnesium. *Journal of Inorganic and Nuclear Chemistry*, **1971**, 33, 4035-4050		69
531	Energetics of formation and hydration of ion-exchanged zeolite Y. *Microporous and Mesoporous Materials*, **2000**, 37, 175-186	5.3	68
530	Thermodynamics of manganese oxides: Effects of particle size and hydration on oxidation-reduction equilibria among hausmannite, bixbyite, and pyrolusite. *American Mineralogist*, **2012**, 97, 1291-1298	2.9	66
529	Surface Enthalpies of Nanophase ZnO with Different Morphologies. *Chemistry of Materials*, **2007**, 19, 5687-5693	9.6	66
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527	Experimental and Theoretical Evaluation of the Stability of True MOF Polymorphs Explains Their Mechanochemical Interconversions. *Journal of the American Chemical Society*, **2017**, 139, 7952-7957	16.4	65
526	Thermochemistry of lanthanum zirconate pyrochlore. *Journal of Materials Research*, **2009**, 24, 3350-3357	2.5	65
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523	Thermodynamics of Fe oxides: Part I. Entropy at standard temperature and pressure and heat capacity of goethite (□-FeOOH), lepidocrocite (□FeOOH), and maghemite (□Fe2O3). *American Mineralogist*, **2003**, 88, 846-854	2.9	63
522	Calorimetric Measurement of Surface and Interface Enthalpies of Yttria-Stabilized Zirconia (YSZ). *Chemistry of Materials*, **2010**, 22, 2937-2945	9.6	59
521	Enthalpy of Water Adsorption and Surface Enthalpy of Goethite (□-FeOOH) and Hematite (□-Fe2O3). *Chemistry of Materials*, **2007**, 19, 825-833	9.6	58
520	Thermochemistry of La1-xSrxFeO3-□ Solid Solutions (0.0 □x □1.0, 0.0 □□0.5). *Chemistry of Materials*, **2005**, 17, 2197-2207	9.6	58
519	Enthalpy of Formation of Gallium Nitride. *Journal of Physical Chemistry B*, **2000**, 104, 4060-4063	3.4	58

518	Experimental Approaches to the Thermodynamics of Ceramics Above 1500°C. *Journal of the American Ceramic Society*, **2012**, 95, 1463-1482	3.8	57
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515	Nickel Solubility and Precipitation in Soils: A Thermodynamic Study. *Clays and Clay Minerals*, **2006**, 54, 153-164	2.1	56
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512	Thermochemistry of Hydrotalcite-like Phases Intercalated with CO32-, NO3-, Cl-, I-, and ReO4-. *Chemistry of Materials*, **2005**, 17, 2455-2459	9.6	55
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509	Thermodynamics of formation for zirconolite (CaZrTi2O7) fromT=298.15 K toT=1500 K. *Journal of Chemical Thermodynamics*, **1999**, 31, 229-243	2.9	54
508	Thermochemistry and phase equilibria in calcium zeolites. *American Mineralogist*, **1996**, 81, 658-667	2.9	54
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505	Thermodynamics of solid electrolytes and related oxide ceramics based on the fluorite structure. *Journal of Materials Chemistry*, **2010**, 20, 10577		52
504	Prototype Sandia Octahedral Molecular Sieve (SOMS) Na2Nb2O6·H2O: Synthesis, Structure and Thermodynamic Stability. *Chemistry of Materials*, **2004**, 16, 2034-2040	9.6	52
503	LiMO2 (M=Mn, Fe, and Co): Energetics, polymorphism and phase transformation. *Journal of Solid State Chemistry*, **2005**, 178, 1230-1240	3.3	52
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491	Polymer-Derived Ultra-High Temperature Ceramics (UHTCs) and Related Materials. *Advanced Engineering Materials*, **2019**, 21, 1900269	3.5	47
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486	Calorimetry of nanoparticles, surfaces, interfaces, thin films, and multilayers. *Journal of Chemical Thermodynamics*, **2007**, 39, 1-9	2.9	46
485	Energetics of CO2 Adsorption on Mg–Al Layered Double Hydroxides and Related Mixed Metal Oxides. *Journal of Physical Chemistry C*, **2014**, 118, 29836-29844	3.8	45
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472	Energetics of SixOyCz Polymer-Derived Ceramics Prepared Under Varying Conditions. *Journal of the American Ceramic Society*, **2008**, 91, 2969-2974	3.8	43
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462	Thermodynamic and Structural Properties of Sodium Lithium Niobate Solid Solutions. *Journal of the American Ceramic Society*, **2004**, 85, 379-384	3.8	41
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456	Thermodynamic Control of Phase Composition and Crystallization of Metal-Modified Silicon Oxycarbides. *Journal of the American Ceramic Society*, **2013**, 96, 1899-1903	3.8	39
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