

Keith Refson

List of Publications by Year in descending order

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133
papers

16,728
citations

70961

41
h-index

14156

128
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137
all docs

137
docs citations

137
times ranked

18055
citing authors

#	ARTICLE	IF	CITATIONS
1	First principles methods using CASTEP. Zeitschrift Fur Kristallographie - Crystalline Materials, 2005, 220, .	0.4	9,458
2	Reproducibility in density functional theory calculations of solids. Science, 2016, 351, aad3000.	6.0	1,113
3	Variational density-functional perturbation theory for dielectrics and lattice dynamics. Physical Review B, 2006, 73, .	1.1	735
4	Moldy: a portable molecular dynamics simulation program for serial and parallel computers. Computer Physics Communications, 2000, 126, 310-329.	3.0	328
5	Density functional theory in the solid state. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2014, 372, 20130270.	1.6	242
6	Water chemisorption and reconstruction of the MgO surface. Physical Review B, 1995, 52, 10823-10826.	1.1	232
7	Computer simulation of interlayer water in 2:1 clays. Journal of Chemical Physics, 1991, 94, 7434-7445.	1.2	211
8	Electron and vibrational spectroscopies using DFT, plane waves and pseudopotentials: CASTEP implementation. Computational and Theoretical Chemistry, 2010, 954, 22-35.	1.5	205
9	Spin Singlet Formation in MgTi ₂ O ₄ : Evidence of a Helical Dimerization Pattern. Physical Review Letters, 2004, 92, 056402.	2.9	178
10	Suppression of thermal conductivity by rattling modes in thermoelectric sodium cobaltate. Nature Materials, 2013, 12, 1028-1032.	13.3	163
11	Novel Rhenium Nitrides. Physical Review Letters, 2010, 105, 085504.	2.9	148
12	Role of Disorder in the Thermodynamics and Atomic Dynamics of Glasses. Physical Review Letters, 2014, 112, 025502.	2.9	125
13	Mechanisms of nickel sorption by a bacteriogenic birnessite. Geochimica Et Cosmochimica Acta, 2010, 74, 3076-3089.	1.6	117
14	Nanoscale momentum-resolved vibrational spectroscopy. Science Advances, 2018, 4, eaar7495.	4.7	111
15	The kinetics and mechanism of MgO dissolution. Chemical Physics Letters, 1999, 314, 558-563.	1.2	110
16	Molecular Dynamics Simulation of Water Mobility in Magnesium-Smectite Hydrates. Journal of the American Chemical Society, 2000, 122, 11459-11464.	6.6	100
17	Defect-Induced Photoconductivity in Layered Manganese Oxides: A Density Functional Theory Study. Physical Review Letters, 2008, 100, 146601.	2.9	98
18	Structural, electronic and vibrational properties of tetragonal zirconia under pressure: a density functional theory study. Journal of Physics Condensed Matter, 2009, 21, 485404.	0.7	97

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19	Understanding the trends in transition metal sorption by vacancy sites in birnessite. <i>Geochimica Et Cosmochimica Acta</i> , 2013, 101, 222-232.	1.6	90
20	An ab initio study of hydrogen in forsterite and a possible mechanism for hydrolytic weakening. <i>Journal of Geophysical Research</i> , 2000, 105, 18977-18982.	3.3	87
21	On the role of Mn(IV) vacancies in the photoreductive dissolution of hexagonal birnessite. <i>Geochimica Et Cosmochimica Acta</i> , 2009, 73, 4142-4150.	1.6	87
22	Hopping Time Scales and the Phonon-Liquid Electron-Crystal Picture in Thermoelectric Copper Selenide. <i>Physical Review Letters</i> , 2017, 118, 145901.	2.9	77
23	Local Atomic Order and Infrared Spectra of Biogenic Calcite. <i>Angewandte Chemie - International Edition</i> , 2007, 46, 291-294.	7.2	76
24	Probing the sorption reactivity of the edge surfaces in birnessite nanoparticles using nickel(II). <i>Geochimica Et Cosmochimica Acta</i> , 2015, 164, 191-204.	1.6	75
25	Surface complexation of Pb(II) by hexagonal birnessite nanoparticles. <i>Geochimica Et Cosmochimica Acta</i> , 2010, 74, 6731-6740.	1.6	73
26	Periclase surface hydroxylation during dissolution. <i>Geochimica Et Cosmochimica Acta</i> , 1995, 59, 1875-1881.	1.6	72
27	Topological triplon modes and bound states in a Shastry-Sutherland magnet. <i>Nature Physics</i> , 2017, 13, 736-741.	6.5	70
28	Zinc surface complexes on birnessite: A density functional theory study. <i>Geochimica Et Cosmochimica Acta</i> , 2009, 73, 1273-1284.	1.6	63
29	Anharmonicity of inner-OH stretching modes in hydrous phyllosilicates: assessment from first-principles frozen-phonon calculations. <i>Physics and Chemistry of Minerals</i> , 2007, 34, 621-625.	0.3	62
30	Molecular dynamics simulation of dilute aqueous DMSO solutions. A temperature-dependence study of the hydrophobic and hydrophilic behaviour around DMSO. <i>Physical Chemistry Chemical Physics</i> , 2004, 6, 94.	1.3	60
31	Lifetimes of cage-like water clusters immersed in bulk liquid water: A molecular dynamics study on gas hydrate nucleation mechanisms. <i>Journal of Chemical Physics</i> , 2004, 121, 1542-1547.	1.2	60
32	Ab Initio Computational Crystallography of 2:1 Clay Minerals: 1. Pyrophyllite-1Tc. <i>Journal of Physical Chemistry B</i> , 2003, 107, 13376-13383.	1.2	58
33	Magnetic ordering in tetragonal FeS: Evidence for strong itinerant spin fluctuations. <i>Physical Review B</i> , 2011, 83, .	1.1	57
34	Visualization and processing of computed solid-state NMR parameters: MagresView and MagresPython. <i>Solid State Nuclear Magnetic Resonance</i> , 2016, 78, 64-70.	1.5	57
35	Theoretical infrared absorption coefficient of OH groups in minerals. <i>American Mineralogist</i> , 2008, 93, 950-953.	0.9	54
36	Modeling steps and kinks on the surface of calcite. <i>Journal of Chemical Physics</i> , 2004, 121, 8511.	1.2	52

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37	Solidâ€‘aqueous equilibrium in the BaSO ₄ â€‘RaSO ₄ â€‘H ₂ O system: First-principles calculations and a thermodynamic assessment. <i>Geochimica Et Cosmochimica Acta</i> , 2013, 122, 398-417.	1.6	48
38	Multiband One-Dimensional Electronic Structure and Spectroscopic Signature of Tomonaga-Luttinger Liquid Behavior in $KxLi_{1-x}FePO_4$. <i>Physical Review Letters</i> , 2017, 118, 097002.	2.9	48
39	Emergence of Crystal-like Atomic Dynamics in Glasses at the Nanometer Scale. <i>Physical Review Letters</i> , 2013, 110, 185503.	2.9	47
40	High-pressure properties of diaspore, AlO(OH). <i>Physics and Chemistry of Minerals</i> , 2007, 34, 145-157.	0.3	45
41	Soft modes in strained and unstrained rutileTiO ₂ . <i>Physical Review B</i> , 2010, 81, .	1.1	44
42	On optical phonons and elasticity in the hcp transition metals Fe, Ru and Re at high pressure. <i>Europhysics Letters</i> , 2001, 53, 504-510.	0.7	42
43	Dynamics of a Highly Charged Ion in Aqueous Solutions: MD Simulations of Dilute CrCl ₃ Aqueous Solutions Using Interaction Potentials Based on the Hydrated Ion Concept. <i>Journal of Physical Chemistry B</i> , 1998, 102, 3272-3282.	1.2	41
44	Molecular dynamics studies of the condensed phases of n-butane and their transitions. <i>Molecular Physics</i> , 1987, 61, 669-692.	0.8	40
45	Evidence for hydrogen transport in deuterated $LiBH_4$ at low-temperature Raman-scattering measurements and first-principles calculations. <i>Physical Review B</i> , 2009, 80, .	1.1	37
46	Density functional theory study of the relative stability of the iron disulfide polymorphs pyrite and marcasite. <i>Physical Review B</i> , 2010, 81, .	1.1	35
47	Molecular dynamics simulation of solid n-butane. <i>Physica B: Physics of Condensed Matter & C: Atomic, Molecular and Plasma Physics, Optics</i> , 1985, 131, 256-266.	0.9	34
48	Viscosity and stress autocorrelation function in supercooled water: a molecular dynamics study. <i>Molecular Physics</i> , 2002, 100, 2617-2627.	0.8	34
49	Characterization of Hydrous Palladium Oxide: Implications for Low-Temperature Carbon Monoxide Oxidation. <i>Journal of Physical Chemistry C</i> , 2010, 114, 14164-14172.	1.5	34
50	Framework flexibility and the negative thermal expansion mechanism of copper(I) oxide Cu_2O . <i>Physical Review B</i> , 2014, 89, .	1.1	34
51	Molecular-dynamics simulation of liquid water with an anisotropic water-water interaction potential. II. The effect of internal vibrations on the time correlation functions. <i>Physical Review A</i> , 1987, 36, 3935-3942.	1.0	33
52	Structural compression and vibrational properties of Bi ₁₂ Si ₂₀ sillenite from experiment and theory. <i>Journal of Physics Condensed Matter</i> , 2010, 22, 505401.	0.7	33
53	Quantum Delocalization of Molecular Hydrogen in Alkali-Graphite Intercalates. <i>Physical Review Letters</i> , 2008, 101, 126101.	2.9	32
54	Complete assignment of the vibrational modes of C ₆₀ by inelastic neutron scattering spectroscopy and periodic-DFT. <i>Physical Chemistry Chemical Physics</i> , 2011, 13, 7789.	1.3	32

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55	Diffusion mechanism in the sodium-ion battery material sodium cobaltate. Scientific Reports, 2018, 8, 3210.	1.6	31
56	<i>Ab Initio</i> Nonequilibrium Molecular Dynamics in the Solid Superionic Conductor LiBH_4 . Physical Review Letters, 2012, 108, 095901.	2.9	30
57	The structure and orientational disorder in solid n-butane by neutron powder diffraction. Acta Crystallographica Section B: Structural Science, 1986, 42, 402-410.	1.8	27
58	How the Surface Structure Determines the Properties of CuH. Inorganic Chemistry, 2015, 54, 2213-2220.	1.9	27
59	An ab initio study of the compressional behavior of forsterite. American Mineralogist, 1996, 81, 257-260.	0.9	26
60	Ag ⁺ Ag dispersive interaction and physical properties of Ag_3Co_6 . Physical Review B, 2014, 90, .	1.1	26
61	Transition metal incorporation into mackinawite (tetragonal FeS). American Mineralogist, 2015, 100, 1509-1517.	0.9	26
62	The effect of molecular vibrations on calculated second virial coefficients. Journal of Chemical Physics, 1987, 87, 3634-3638.	1.2	25
63	The structure of interlayer water in a hydrated 2:1 clay. Chemical Physics Letters, 1990, 166, 141-145.	1.2	25
64	Finite-size effect at both high and low temperatures in molecular dynamics calculations of the self-diffusion coefficient and viscosity of liquid silica. Journal of Physics Condensed Matter, 2004, 16, 9127-9135.	0.7	25
65	Spectroscopic and Ab Initio Characterization of the [ReH9]2-Ion. Inorganic Chemistry, 2006, 45, 10951-10957.	1.9	25
66	Vibrational properties of Re_3N from experiment and theory. Physical Review B, 2010, 82, .	1.1	24
67	Experimental evidence of librational vibrations determining the stability of calcium borohydride. Physical Review B, 2011, 83, .	1.1	24
68	Assignment of the vibrational spectra of lithium hydroxide monohydrate, $\text{LiOH}\cdot\text{H}_2\text{O}$. Journal of Chemical Physics, 2011, 134, 084503.	1.2	24
69	Strong physisorption site for H ₂ in K- and Li-doped porous carbons. Journal of Chemical Physics, 2008, 129, 224701.	1.2	23
70	Phase stabilities of MgCO_3 studied by Raman spectroscopy, x-ray diffraction, and density functional theory calculations. Physical Review Materials, 2020, 4, .	0.9	23
71	Structure determination of adsorbed hydrogen on a real catalyst. Chemical Communications, 2010, 46, 2959.	2.2	22
72	High pressure elasticity of FeCO_3 - MgCO_3 carbonates. Physics of the Earth and Planetary Interiors, 2017, 271, 57-63.	0.7	22

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73	Diffusion in Li ₂ O studied by non-equilibrium molecular dynamics for 873 < T/K < 1603. Physical Chemistry Chemical Physics, 2015, 17, 21470-21475.	1.3	21
74	Lattice dynamics and elasticity of SrCO ₃ . Journal of Applied Crystallography, 2016, 49, 1982-1990.	1.9	21
75	High-pressure crystal structure prediction of calcium borohydride using density functional theory. Physical Review B, 2011, 83, .	1.1	20
76	New insights into the lattice dynamics of α -quartz. Zeitschrift für Kristallographie, 2012, 227, 84-91.	1.1	20
77	Many-body renormalization of forces in f -electron materials. Physical Review B, 2018, 98, .	1.1	20
78	Dispersion Relation of an OH-Stretching Vibration from Inelastic X-Ray Scattering. Physical Review Letters, 2008, 101, 065501.	2.9	19
79	Optimized effective potential using the Hylleraas variational method. Physical Review B, 2012, 85, .	1.1	19
80	Lattice dynamics of stishovite from powder inelastic X-ray scattering. Geophysical Research Letters, 2009, 36, .	1.5	18
81	Molecular dynamics investigation of the disordered crystal structure of hexagonal LiBH ₄ . Physical Chemistry Chemical Physics, 2013, 15, 8081.	1.3	18
82	Ferroelectric behaviour in solid croconic acid using neutron scattering and first-principles density functional theory. Chemical Physics, 2013, 427, 95-100.	0.9	18
83	Lattice dynamics of α -cristobalite and the Boson peak in silica glass. Journal of Physics Condensed Matter, 2015, 27, 305401.	0.7	18
84	Chemical Descriptors of Ytria-Stabilized Zirconia at Low Defect Concentration: An <i>ab Initio</i> Study. Journal of Physical Chemistry A, 2015, 119, 6412-6420.	1.1	16
85	The influence of pressure on the structure and dynamics of hydrogen bonds in zoisite and clinzoisite. Physics and Chemistry of Minerals, 2008, 35, 25-35.	0.3	15
86	Pressure dependence of the lattice dynamics of diaspor, α -AlO(OH), from Raman spectroscopy and density functional perturbation theory. Physics and Chemistry of Minerals, 2011, 38, 693-700.	0.3	15
87	Inelastic incoherent neutron scattering study of the molecular properties of pure hydrogen peroxide and its water mixtures of different concentration. Journal of Chemical Physics, 2014, 140, 164504.	1.2	15
88	Ferroelectric soft mode of polar ZnTiO ₃ investigated by Raman spectroscopy at high pressure. Physical Review B, 2015, 91, .	1.1	15
89	3D Imaging of the Fermi Surface by Thermal Diffuse Scattering. Physical Review Letters, 2009, 103, 076403.	2.9	14
90	Molecular dynamics studies of the condensed phases of n-butane and their transitions. Molecular Physics, 1987, 61, 693-709.	0.8	13

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91	Effect of H-bond topology on the lifetimes of cagelike water clusters immersed in liquid water and the probability distribution of these lifetimes: Implications for hydrate nucleation mechanisms. <i>Chemical Physics Letters</i> , 2005, 413, 415-419.	1.2	13
92	A first-principles study of the vibrational properties of crystalline tetracene under pressure. <i>Journal of Physics Condensed Matter</i> , 2015, 27, 375402.	0.7	13
93	Hydrogen Bonding in the Organic Ferroelectric Croconic Acid: Insights from Experiment and First-Principles Modelling. <i>Journal of the Physical Society of Japan</i> , 2013, 82, SA001.	0.7	12
94	Lattice dynamics and Mg/Ti order in orthorhombic pseudobrookite-type MgTi ₂ O ₅ . <i>Journal of Alloys and Compounds</i> , 2017, 699, 16-24.	2.8	12
95	A local Fock-exchange potential in Kohn-Sham equations. <i>Journal of Physics Condensed Matter</i> , 2017, 29, 04LT01.	0.7	12
96	Effect of Basicity on the Hydrolysis of the Bi(III) Aqua Ion in Solution: An Ab Initio Molecular Dynamics Study. <i>Journal of Physical Chemistry A</i> , 2018, 122, 1905-1915.	1.1	12
97	A combined experimental inelastic neutron scattering, Raman and ab initio lattice dynamics study of δ -lithium amidoborane. <i>Physical Chemistry Chemical Physics</i> , 2011, 13, 12249.	1.3	11
98	Structure and spectroscopy of CuH prepared via borohydride reduction. <i>Acta Crystallographica Section B: Structural Science, Crystal Engineering and Materials</i> , 2015, 71, 608-612. Experimental evidence for the structural models of the compound	0.5	11
99	Re_2C from micro-Raman spectroscopy. <i>Physical Review B</i> , 2012, 86,	1.1	10
100	Assignment of Metal-Ligand Modes in Pt(II) Diimine Complexes Relevant to Solar Energy Conversion. <i>Inorganic Chemistry</i> , 2012, 51, 9748-9756.	1.9	10
101	Diffuse scattering in metallic tin polymorphs. <i>Journal of Physics Condensed Matter</i> , 2014, 26, 115401.	0.7	10
102	Assignment of the Internal Vibrational Modes of C ₇₀ by Inelastic Neutron Scattering Spectroscopy and Periodic DFT. <i>ChemistryOpen</i> , 2015, 4, 620-625.	0.9	10
103	Two-dimensional Cs-vacancy superstructure in iron-based superconductor Cs _{1-x} Fe _{1+x} As ₂ . <i>Physical Review B</i> , 2015, 91, .	1.0	10
104	Comment on "First-principles study of the influence of (110)-oriented strain on the ferroelectric properties of rutile TiO ₂ ". <i>Physical Review B</i> , 2013, 88, .	1.1	9
105	Room temperature single-crystal diffuse scattering and ab initio lattice dynamics in CaTiSiO ₅ . <i>Journal of Physics Condensed Matter</i> , 2013, 25, 315402.	0.7	8
106	Pressure-induced Pb-Pb bonding and phase transition in Pb ₂ SnO ₄ . <i>Acta Crystallographica Section B: Structural Science, Crystal Engineering and Materials</i> , 2020, 76, 979-991.	0.5	8
107	A molecular dynamics study on Rh ³⁺ hydration: development and application of a first principles hydrated ion-water interaction potential. <i>Theoretical Chemistry Accounts</i> , 2004, 111, 101-109.	0.5	7
108	Mechanism of enhancement of ferroelectricity of croconic acid with temperature. <i>Physical Chemistry Chemical Physics</i> , 2017, 19, 32216-32225.	1.3	7

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109	Molecular dynamics simulations on a parallel computer plastic crystals and related systems. Journal De Chimie Physique Et De Physico-Chimie Biologique, 1985, 82, 249-257.	0.2	7
110	Origin of the large anharmonicity in the phonon modes of LiBH ₄ . Chemical Physics, 2013, 427, 22-29.	0.9	6
111	Dimer-mediated cation diffusion in the stoichiometric ionic conductor Li ₃ N. Physical Chemistry Chemical Physics, 2016, 18, 5605-5613.	1.3	6
112	Computation of diffuse scattering arising from one-phonon excitations in a neutron time-of-flight single-crystal Laue diffraction experiment. Journal of Applied Crystallography, 2015, 48, 1122-1129.	1.9	6
113	The high resolution inelastic neutron scattering spectrum of ammonium fluoride. Physical Chemistry Chemical Physics, 2005, 7, 3685.	1.3	5
114	Negative thermal expansion of cubic silicon dicarbodiimide, Si(NCN) ₂ , studied by <i>ab initio</i> lattice dynamics. Journal of Physics Condensed Matter, 2020, 32, 465402.	0.7	5
115	The <i>ab initio</i> study of the stability of low temperature Al/Si ordered albite, NaAlSi ₃ O ₈ . American Mineralogist, 2000, 85, 1681-1685.	0.9	4
116	Terascale materials modelling on high performance system HPCx. Journal of Materials Chemistry, 2006, 16, 1885.	6.7	4
117	Stabilization of 3d Transition Metal Hydrido Complexes in SrH ₂ Mg ₂ [Co(I)H ₅], BaH ₂ Mg ₅ [Co(II)H ₄] ₂ , and RbH ₂ Mg ₅ [Co(II)H ₄ Ni(O)H ₄] via Easily Polarizable Hydride Ligands. Inorganic Chemistry, 2016, 55, 3576-3582.	1.9	4
118	Self-interaction free local exchange potentials applied to metallic systems. Journal of Physics Condensed Matter, 2017, 29, 374002.	0.7	4
119	Electronic, Structural, and Mechanical Properties of SiO_2 Glass at High Pressure Inferred from its Refractive Index. Physical Review Letters, 2022, 128, 077403.	2.9	4
120	Refinement of the orientational distribution function in plastic-butane guided by computer simulations. Acta Crystallographica Section A: Foundations and Advances, 1987, 43, 727-731.	0.3	3
121	Core beliefs. Nature, 2001, 413, 27-29.	13.7	3
122	Vibrational spectroscopy of a compound with a CS ₇ ring. Journal of Raman Spectroscopy, 2009, 40, 703-708.	1.2	3
123	Influence of deuteration on lithium acetate dihydrate studied by inelastic X-ray scattering, density functional theory, thermal expansion, elastic and thermodynamic measurements. Dalton Transactions, 2011, 40, 1737.	1.6	3
124	Discussion: Nuclear Quantum Dynamics - Protons and Beyond. Journal of Physics: Conference Series, 2014, 571, 012004.	0.3	3
125	Determining Surface Chemistry and Vibrational Properties of SOFC Anode Materials Through <i>Ab Initio</i> Calculations. ECS Transactions, 2013, 57, 2419-2427.	0.3	2
126	Correlations in the plastic crystal phase of n-butane. Computer Physics Communications, 1991, 62, 279-288.	3.0	1

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127	Na ₃ O(CN): \hat{a} Ab initio calculations on a multidomain structure. Physical Review B, 2004, 70, .	1.1	1
128	The ferroelastic phase transition in hydrogen cyanide studied by density functional theory. Journal of Physics Condensed Matter, 2021, , .	0.7	1
129	Time and Frequency Resolved Hydrogen Dynamics in deuterated LiBH ₄ . Materials Research Society Symposia Proceedings, 2009, 1216, 1.	0.1	0
130	Evidence for Hydrogen Transport in Deuterated LiBH ₄ from Raman-Scattering Measurements and First-Principles Calculations. Advances in Science and Technology, 2010, 72, 150-157.	0.2	0
131	Molecular (and Lattice) Dynamics to Analyse Neutron Scattering Experiments 2016 \hat{a} MDANSE2016. Neutron News, 2017, 28, 17-18.	0.1	0
132	Structural phase transitions in malononitrile, CH ₂ (CN) ₂ : crystal structure of the \hat{I} phase by neutron powder diffraction, and ab initio calculations of the structures and phonons of the \hat{I} and \hat{I} phases. Journal of Physics Condensed Matter, 2019, 31, 255401.	0.7	0
133	Ab initio lattice dynamics and thermal diffuse scattering in CaTiSiO ₅ . Acta Crystallographica Section A: Foundations and Advances, 2011, 67, C417-C418.	0.3	0