

# Hyunchae Cynn

## List of Publications by Year in descending order

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93  
papers

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citations

87843

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docs citations

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times ranked

3619  
citing authors

#	ARTICLE	IF	CITATIONS
1	Quartzlike Carbon Dioxide: An Optically Nonlinear Extended Solid at High Pressures and Temperatures. <i>Science</i> , 1999, 283, 1510-1513.	6.0	273
2	Crystal Structure of Carbon Dioxide at High Pressure: "Superhard" Polymeric Carbon Dioxide. <i>Physical Review Letters</i> , 1999, 83, 5527-5530.	2.9	232
3	Osmium has the Lowest Experimentally Determined Compressibility. <i>Physical Review Letters</i> , 2002, 88, 135701.	2.9	189
4	Equation of state, phase transition, decomposition of $\beta^2$ -HMX (octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine) at high pressures. <i>Journal of Chemical Physics</i> , 1999, 111, 10229-10235.	1.2	180
5	High-temperature Raman investigation of order-disorder behavior in the $\text{MgAl}_2\text{O}_4$ spinel. <i>Physical Review B</i> , 1992, 45, 500-502.	1.1	137
6	Elasticity of $\text{TiO}_2$ rutile to 1800 K. <i>Physics and Chemistry of Minerals</i> , 1998, 26, 31-43.	0.3	134
7	Spin state of ferric iron in $\text{MgSiO}_3$ perovskite and its effect on elastic properties. <i>Earth and Planetary Science Letters</i> , 2010, 289, 68-75.	1.8	129
8	Equation of state of tantalum to 174 GPa. <i>Physical Review B</i> , 1999, 59, 8526-8529.	1.1	126
9	New $\beta^2$ (fcc)-Cobalt to 210 GPa. <i>Physical Review Letters</i> , 2000, 84, 4132-4135.	2.9	123
10	Six-fold coordinated carbon dioxide VI. <i>Nature Materials</i> , 2007, 6, 34-38.	13.3	120
11	Martensitic fcc-to-hcp Transformation Observed in Xenon at High Pressure. <i>Physical Review Letters</i> , 2001, 86, 4552-4555.	2.9	109
12	Thermal Signatures of the Kondo Volume Collapse in Cerium. <i>Physical Review Letters</i> , 2008, 101, 165703.	2.9	103
13	Phase diagram of uranium at high pressures and temperatures. <i>Physical Review B</i> , 1998, 57, 10359-10362.	1.1	100
14	Pressure-Induced Polymerization of Carbon Monoxide: Disproportionation and Synthesis of an Energetic Lactonic Polymer. <i>Chemistry of Materials</i> , 2006, 18, 2520-2531.	3.2	92
15	Effects of the $\text{Fe}^{3+}$ spin transition on the properties of aluminous perovskite "New insights for lower-mantle seismic heterogeneities. <i>Earth and Planetary Science Letters</i> , 2011, 310, 293-302.	1.8	84
16	Dynamic diamond anvil cell (dDAC): A novel device for studying the dynamic-pressure properties of materials. <i>Review of Scientific Instruments</i> , 2007, 78, 073904.	0.6	81
17	Transformation of molecular nitrogen to nonmolecular phases at megabar pressures by direct laser heating. <i>Physical Review B</i> , 2007, 76, .	1.1	74
18	Vibrational spectra of dense, hydrous magnesium silicates at high pressure; importance of the hydrogen bond angle. <i>American Mineralogist</i> , 1999, 84, 454-464.	0.9	72

#	ARTICLE	IF	CITATIONS
19	Equation of state and high-pressure/high-temperature phase diagram of magnesium. <i>Physical Review B</i> , 2014, 90, .	1.1	69
20	Thermodynamic properties and hydrogen speciation from vibrational spectra of dense hydrous magnesium silicates. <i>Physics and Chemistry of Minerals</i> , 1996, 23, 361.	0.3	67
21	Crystal structure of pseudo-six-fold carbon dioxide phase II at high pressures and temperatures. <i>Physical Review B</i> , 2002, 65, .	1.1	66
22	Single crystal toroidal diamond anvils for high pressure experiments beyond 5 megabar. <i>Nature Communications</i> , 2018, 9, 3563.	5.8	65
23	Nonlinear Carbon Dioxide at High Pressures and Temperatures. <i>Physical Review Letters</i> , 2001, 86, 444-447.	2.9	63
24	Direct elementary reactions of boron and nitrogen at high pressures and temperatures. <i>Physical Review B</i> , 1997, 56, 140-146.	1.1	62
25	The phase diagram of cobalt at high pressure and temperature: the stability of $\epsilon$ -cobalt and new $\epsilon'$ -cobalt. <i>Journal of Physics Condensed Matter</i> , 1998, 10, L311-L318.	0.7	54
26	Crystal structure of bent carbon dioxide phase IV. <i>Physical Review B</i> , 2003, 68, .	1.1	52
27	Fullerene formation in sputtering and electron beam evaporation processes. <i>The Journal of Physical Chemistry</i> , 1992, 96, 6866-6869.	2.9	51
28	High-pressure IR spectra of lattice modes and OH vibrations in Fe-bearing wadsleyite. <i>Journal of Geophysical Research</i> , 1994, 99, 17717-17727.	3.3	50
29	Effects of cation disordering in a natural MgAl <sub>2</sub> O <sub>4</sub> spinel observed by rectangular parallelepiped ultrasonic resonance and Raman measurements. <i>Pure and Applied Geophysics</i> , 1993, 141, 415-444.	0.8	48
30	A role for subducted super-hydrated kaolinite in Earth's deep water cycle. <i>Nature Geoscience</i> , 2017, 10, 947-953.	5.4	47
31	Experimental and theoretical confirmation of an orthorhombic phase transition in niobium at high pressure and temperature. <i>Communications Materials</i> , 2020, 1, .	2.9	46
32	Experimental method for <i>in situ</i> determination of material textures at simultaneous high pressure and high temperature by means of radial diffraction in the diamond anvil cell. <i>Review of Scientific Instruments</i> , 2009, 80, 104501.	0.6	43
33	Atomic structure and phase transformations in Pu alloys. <i>Progress in Materials Science</i> , 2009, 54, 909-943.	16.0	43
34	Structural phase transition in vanadium at high pressure and high temperature: Influence of nonhydrostatic conditions. <i>Physical Review B</i> , 2011, 83, .	1.1	43
35	X-ray diffraction and Raman studies of beryllium: Static and elastic properties at high pressures. <i>Physical Review B</i> , 2005, 72, .	1.1	42
36	Irreversible xenon insertion into a small-pore zeolite at moderate pressures and temperatures. <i>Nature Chemistry</i> , 2014, 6, 835-839.	6.6	42

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37	Melting curve and phase diagram of vanadium under high-pressure and high-temperature conditions. Physical Review B, 2019, 100, .	1.1	42
38	X-ray Emission Spectroscopy of Cerium Across the $\hat{\Gamma}_3$ Volume Collapse Transition. Physical Review Letters, 2012, 109, 195705.	2.9	38
39	High-temperature experiments using a resistively heated high-pressure membrane diamond anvil cell. Review of Scientific Instruments, 2013, 84, 095114.	0.6	38
40	High-temperature superconductivity stabilized by electron-hole interband coupling in collapsed tetragonal phase of $KFe_2Mn_2$ high pressure. Physical Review B, 2015, 91, .	1.1	37
41	Phase diagram and equation of state of praseodymium at high pressures and temperatures. Physical Review B, 2003, 67, .	1.1	36
42	High-pressure Raman study of one-dimensional crystals of the very polar molecule hydrogen cyanide. Physical Review B, 1990, 42, 4298-4303.	1.1	33
43	Martensitic fcc-to-hcp Transformations in Solid Xenon under Pressure: A First-Principles Study. Physical Review Letters, 2006, 96, 035504.	2.9	33
44	Elastic constants of osmium between 5 and 300 K. Physical Review B, 2009, 80, .	1.1	33
45	Distinct thermal behavior of $GeO_2$ glass in tetrahedral, intermediate, and octahedral forms. Proceedings of the National Academy of Sciences of the United States of America, 2007, 104, 14576-14579.	3.3	30
46	Contributed Review: Culet diameter and the achievable pressure of a diamond anvil cell: Implications for the upper pressure limit of a diamond anvil cell. Review of Scientific Instruments, 2018, 89, 111501.	0.6	30
47	Subnanosecond phase transition dynamics in laser-shocked iron. Science Advances, 2020, 6, eaaz5132.	4.7	29
48	Zero-Kelvin Compression Isotherms of the Elements 1 $\hat{\Gamma}_3$ 92 to 100 GPa. Journal of Physical and Chemical Reference Data, 2016, 45, .	1.9	28
49	Grueneisen ratios of MgO from the calculation of entropy. The Journal of Physical Chemistry, 1995, 99, 7813-7818.	2.9	27
50	Disproportionation and Other Transformations of N <sub>2</sub> O at High Pressures and Temperatures to Lower Energy, Denser Phases. Journal of Physical Chemistry B, 2003, 107, 5922-5925.	1.2	25
51	Bulk modulus of osmium, 4 $\hat{\Gamma}_3$ 300K. Acta Materialia, 2009, 57, 544-548.	3.8	25
52	Measurement of the phonon density of states of PuO <sub>2</sub> (+2%Ga): A critical test of theory. Physical Review B, 2012, 85, .	1.1	25
53	Search for superconductivity in LiBCat high pressure: Diamond anvil cell experiments and first-principles calculations. Physical Review B, 2007, 75, .	1.1	24
54	Diamond anvil cell measurement of high-pressure yield strength of vanadium using $\hat{\Gamma}_3$ in situ thickness determination. Physical Review B, 2010, 81, .	1.1	21

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55	Novel experimental setup for megahertz X-ray diffraction in a diamond anvil cell at the High Energy Density (HED) instrument of the European X-ray Free-Electron Laser (EuXFEL). Journal of Synchrotron Radiation, 2021, 28, 688-706.	1.0	21
56	Comparison of the high-pressure behavior of the cerium oxides $C_2O_3$ and $Ce_2O_3$ and anomalous elastic properties across the $f^3$ to $f^2$ volume collapse in cerium. Nature Communications, 2017, 8, 1198.	1.1	20
57	Anomalous elastic properties across the $f^3$ to $f^2$ volume collapse in cerium. Nature Communications, 2017, 8, 1198.	5.8	20
58	Thermal properties of forsterite, including $C_v$ , calculated from $f^3$ to $f^2$ through the entropy. Journal of Physics and Chemistry of Solids, 1996, 57, 1593-1599.	1.9	19
59	Phase transition and decomposition of 90% hydrogen peroxide at high pressures. Journal of Chemical Physics, 1999, 110, 6836-6843.	1.2	16
60	Experimental and theoretical study of Ti-6Al-4V to 220 GPa. Physical Review B, 2012, 85, .	1.1	16
61	Solidification and fcc to metastable hcp phase transition in krypton under variable compression rates. Physical Review B, 2014, 90, .	1.1	15
62	High-Pressure-Induced Phase Transitions in Pentaerythritol: X-ray and Raman Studies. Journal of Physical Chemistry B, 2005, 109, 22581-22587.	1.2	14
63	Electronic structure of iron in magnesium silicate glasses at high pressure. Geophysical Research Letters, 2012, 39, .	1.5	14
64	Strength and Debye temperature measurements of cerium across the $f^3$ to $f^2$ volume collapse: the lattice contribution. Journal of Physics Condensed Matter, 2013, 25, 345401.	0.7	14
65	X-ray Free Electron Laser-Induced Synthesis of $f^2$ -Iron Nitride at High Pressures. Journal of Physical Chemistry Letters, 2021, 12, 3246-3252.	2.1	14
66	Osmium's Debye temperature. Journal of Physics and Chemistry of Solids, 2008, 69, 211-213.	1.9	12
67	The phase diagram of Ti-6Al-4V at high-pressures and high-temperatures. Journal of Physics Condensed Matter, 2021, 33, 154001.	0.7	12
68	Interplay between magnetism, structure, and strong electron-phonon coupling in binary FeAs under pressure. Physical Review B, 2011, 83, .	1.1	11
69	Magnetism and structural distortions in uranium sulfide under pressure. Physical Review B, 2013, 87, .	1.1	11
70	Effects of Cation Disorder in a Natural MgAl <sub>2</sub> O <sub>4</sub> Spinel Observed by Rectangular Parallelepiped Ultrasonic Resonance and Raman Measurements. , 1993, , 415-444.		11
71	High pressure crystal structure of PrN. Journal of Physics: Conference Series, 2010, 215, 012010.	0.3	10
72	Two-phase equation of state for lithium fluoride. Journal of Chemical Physics, 2019, 150, 074506.	1.2	10

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73	The stability of subducted glaucophane with the Earth's secular cooling. Nature Communications, 2021, 12, 1496.	5.8	10
74	In situ X-ray diffraction study of the $\beta$ to $\beta'$ isothermal martensitic transformation kinetics in a Pu-Ga alloy. Journal of Nuclear Materials, 2011, 412, 327-333.	1.3	9
75	Phosphorus Dimerization in Gallium Phosphide at High Pressure. Inorganic Chemistry, 2018, 57, 2432-2437.	1.9	9
76	X-ray free electron laser heating of water and gold at high static pressure. Communications Materials, 2021, 2, .	2.9	9
77	Equation of state measurements by radiography provide evidence for a liquid-liquid phase transition in cerium. Journal of Physics: Conference Series, 2014, 500, 032011.	0.3	5
78	High pressure stability of $\beta$ -Zr: no evidence for isostructural phase transitions. High Pressure Research, 2021, 41, 247-266.	0.4	4
79	Elementary Reactions of Nitrogen and Oxygen with Boron and Carbon at High Pressures and Temperatures.. Review of High Pressure Science and Technology/Koatsuryoku No Kagaku To Gijutsu, 1998, 7, 1054-1056.	0.1	4
80	Plasma etching of cavities into diamond anvils for experiments at high pressures and high temperatures. High Pressure Research, 2011, 31, 191-198.	0.4	3
81	ULTRAFAST MATERIALS PROBING WITH THE LLNL THOMSON X-RAY SOURCE. , 2003, , .		3
82	X-ray induced luminescence of solid argon at high pressures: A pressure probe. Applied Physics Letters, 2000, 76, 3721-3722.	1.5	2
83	Probing the isothermal $\beta$ to $\beta'$ martensitic transformation in Pu-Ga with in situ x-ray diffraction. Materials Research Society Symposia Proceedings, 2010, 1264, 1.	0.1	2
84	An Experimental and Theoretical Multi-Mbar Study of Ti-6Al-4V. Materials Research Society Symposia Proceedings, 2011, 1369, 1.	0.1	2
85	Experimental Issues in In-Situ Synchrotron X-Ray Diffraction at High Pressure and Temperature by Using a Laser-Heated Diamond-Anvil Cell. Materials Research Society Symposia Proceedings, 1997, 499, 419.	0.1	1
86	Elastic properties of forsterite at high pressure obtained from the high-temperature database. Geophysical Monograph Series, 1998, , 345-355.	0.1	1
87	Publisher's Note: High-temperature superconductivity stabilized by electron-hole interband coupling in collapsed tetragonal phase of KFe2As2 under high pressure [Phys. Rev. B91, 060508(R) (2015)]. Physical Review B, 2015, 91, .	1.1	1
88	Stability of the sc16 polymorph of GaAs. Journal of Physics and Chemistry of Solids, 2021, 159, 110233.	1.9	1
89	PLEIADES: a subpicosecond Thomson x-ray source for ultrafast materials probing. , 2003, , .		0
90	Measurement of the Phonon Density of States of PuO2(+2%Ga). Materials Research Society Symposia Proceedings, 2012, 1444, 141.	0.1	0

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91	High-Pressure Materials, Energy, and Environmental Sciences Using SSRL and LCLS. Synchrotron Radiation News, 2019, 32, 32-33.	0.2	0
92	Valence instability across the magnetostructural transition in $\text{USb}_2$ . Physical Review B, 2020, 101, .		
93	High-pressure structural systematics of dysprosium metal compressed in a neon pressure medium to 182 GPa. Physical Review B, 2022, 105, .	1.1	0