Takuo Okuchi

List of Publications by Year
in descending order

84	1,790	236833	289141
papers	citations	25 h-index	40 g-index

85	85	85	1741
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Hydrogen Partitioning into Molten Iron at High Pressure: Implications for Earth's Core. Science, 1997, 278, 1781-1784.	6.0	214
2	X-ray Raman scattering study of MgSiO ₃ glass at high pressure: Implication for triclustered MgSiO ₃ melt in Earth's mantle. Proceedings of the National Academy of Sciences of the United States of America, 2008, 105, 7925-7929.	3.3	123
3	Electronic bonding transition in compressedSiO2glass. Physical Review B, 2007, 75, .	1.1	81
4	Effects of iron on the lattice thermal conductivity of Earthâ€™s deep mantle and implications for mantle dynamics. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 4099-4104.	3.3	57
5	Micromachining and surface processing of the super-hard nano-polycrystalline diamond by three types of pulsed lasers. Applied Physics A: Materials Science and Processing, 2009, 96, 833-842.	1.1	56
6	Reduced lattice thermal conductivity of Feâ€bearing bridgmanite in Earth's deep mantle. Journal of Geophysical Research: Solid Earth, 2017, 122, 4900-4917.	1.4	53
7	Hydrogenation of iron in the early stage of Earthâ€™s evolution. Nature Communications, 2017, 8, 14096.	5.8	50
8	Efficient storage of hydrogen fuel into leaky cages of clathrate hydrate. Applied Physics Letters, 2007, 91, 171903.	1.5	49
9	Shock Hugoniot and temperature data for polystyrene obtained with quartz standard. Physics of Plasmas, 2009, 16, .	0.7	46
10	Water Concentration in Singleâ€Crystal (Al,Fe)â€Bearing Bridgmanite Grown From the Hydrous Melt: Implications for Dehydration Melting at the Topmost Lower Mantle. Geophysical Research Letters, 2019, 46, 10346-10357.	1.5	46
11	Elasticity of Ferropericlase across the Spin Crossover in the Earthâ€™s Lower Mantle. Scientific Reports, 2015, 5, 17188.	1.6	44
12	Micro-/nanostructural investigation of laser-cut surfaces of single- and polycrystalline diamonds. Diamond and Related Materials, 2010, 19, 1040-1051.	1.8	43
13	Poirierite, a dense metastable polymorph of magnesium iron silicate in shocked meteorites. Communications Earth & Environment, 2021, 2, .	2.6	41
14	Dynamic fracture of tantalum under extreme tensile stress. Science Advances, 2017, 3, e1602705.	4.7	41
15	Experimental study of thermal conductivity at high pressures: Implications for the deep Earthâ€™s interior. Physics of the Earth and Planetary Interiors, 2015, 247, 11-16.	0.7	40
16	Pulsed laser processing of nano-polycrystalline diamond: A comparative study with single crystal diamond. Diamond and Related Materials, 2009, 18, 877-880.	1.8	37
17	Laser-shock compression and Hugoniot measurements of liquid hydrogen to 55 GPa. Physical Review B, 2011, 83, .	1.1	35
18	Hydrogen bonding and dynamics of methanol by high-pressure diamond-anvil cell NMR. Journal of Chemical Physics, 2005, 122, 244509.	1.2	32

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19	Hydrogen site analysis of hydrous ringwoodite in mantle transition zone by pulsed neutron diffraction. Geophysical Research Letters, 2014, 41, 6718-6724.	1.5	30
20	The melting temperature of iron hydride at high pressures and its implications for the temperature of the Earth's core. Journal of Physics Condensed Matter, 1998, 10, 11595-11598.	0.7	29
21	Fast molecular transport in hydrogen hydrates by high-pressure diamond anvil cell NMR. Physical Review B, 2007, 75, .	1.1	28
22	P-Ï-T measurements of H2O up to 260 GPa under laser-driven shock loading. Journal of Chemical Physics, 2015, 142, 164504.	1.2	27
23	Abnormal Elasticity of Feâ€Bearing Bridgmanite in the Earth's Lower Mantle. Geophysical Research Letters, 2018, 45, 4725-4732.	1.5	27
24	Equation of state and hyperfine parameters of high-spin bridgmanite in the Earthâ€™s lower mantle by synchrotron X-ray diffraction and MÃ¶ssbauer spectroscopy. American Mineralogist, 2017, 102, 357-368.	0.9	26
25	Melting behavior of the lower-mantle ferropericlase across the spin crossover: Implication for the ultra-low velocity zones at the lowermost mantle. Earth and Planetary Science Letters, 2018, 503, 1-9.	1.8	25
26	Self-diffusion of protons in H2O ice VII at high pressures: Anomaly around 10 GPa. Journal of Chemical Physics, 2016, 144, 234503.	1.2	24
27	Resonant X-ray emission study of the lower-mantle ferropericlase at high pressures. American Mineralogist, 2010, 95, 1125-1131.	0.9	23
28	Highâ€spin Fe 2+ and Fe 3+ in singleâ€crystal aluminous bridgmanite in the lower mantle. Geophysical Research Letters, 2016, 43, 6952-6959.	1.5	23
29	Degree of Permanent Densification in Oxide Glasses upon Extreme Compression up to 24 GPa at Room Temperature. Journal of Physical Chemistry Letters, 2020, 11, 2917-2924.	2.1	22
30	Quantitative analysis of hydrogen sites and occupancy in deep mantle hydrous wadsleyite using single crystal neutron diffraction. Scientific Reports, 2016, 6, 34988.	1.6	21
31	Synthesis of large and homogeneous single crystals of water-bearing minerals by slow cooling at deep-mantle pressures. American Mineralogist, 2015, 100, 1483-1492.	0.9	20
32	Ultrafast observation of lattice dynamics in laser-irradiated gold foils. Applied Physics Letters, 2017, 110, .	1.5	20
33	Laser-driven shock compression of â€œsynthetic planetary mixturesâ€•of water, ethanol, and ammonia. Scientific Reports, 2019, 9, 10155.	1.6	19
34	A new type of nonmagnetic diamond anvil cell for nuclear magnetic resonance spectroscopy. Physics of the Earth and Planetary Interiors, 2004, 143-144, 611-616.	0.7	18
35	Neutron powder diffraction under high pressure at J-PARC. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2009, 600, 50-52.	0.7	17
36	A new high-pressure form of Mg2SiO4 highlighting diffusionless phase transitions of olivine. Scientific Reports, 2017, 7, 17351.	1.6	17

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37	Iron isotopic fractionation in mineral phases from Earth's lower mantle: Did terrestrial magma ocean crystallization fractionate iron isotopes?. Earth and Planetary Science Letters, 2019, 506, 113-122.	1.8	17
38	Precometary organic matter: A hidden reservoir of water inside the snow line. Scientific Reports, 2020, 10, 7755.	1.6	16
39	Radio frequency probe with improved sensitivity for diamond anvil cell nuclear magnetic resonance. Review of Scientific Instruments, 2005, 76, 026111.	0.6	15
40	H-D interdiffusion in brucite at pressures up to 15 GPa. American Mineralogist, 2013, 98, 1919-1929.	0.9	14
41	EXAFS studies under high pressure by X-ray Raman scattering. High Pressure Research, 2016, 36, 250-261.	0.4	14
42	Single-crystal elasticity of (Al,Fe)-bearing bridgmanite and seismic shear wave radial anisotropy at the topmost lower mantle. Earth and Planetary Science Letters, 2019, 518, 116-126.	1.8	14
43	Structure refinement of sub-cubic-mm volume sample at high pressures by pulsed neutron powder diffraction: application to brucite in an opposed anvil cell. High Pressure Research, 2014, 34, 273-280.	0.4	13
44	Pulsed neutron powder diffraction at high pressure by a capacity-increased sapphire anvil cell. High Pressure Research, 2013, 33, 777-786.	0.4	11
45	Determination of hydrogen site and occupancy in hydrous Mg₂SiO₄ spinel by single-crystal neutron diffraction. Acta Crystallographica Section B: Structural Science, Crystal Engineering and Materials, 2018, 74, 115-120.	0.5	11
46	Phase boundary between perovskite and post-perovskite structures in MnGeO3 determined by in situ X-ray diffraction measurements using sintered diamond anvils. American Mineralogist, 2011, 96, 89-92.	0.9	10
47	Hydrogen sites in the dense hydrous magnesian silicate phase E: a pulsed neutron powder diffraction study. Physics and Chemistry of Minerals, 2016, 43, 267-275.	0.3	10
48	Significant static pressure increase in a precompression cell target for laser-driven advanced dynamic compression experiments. Physics of Plasmas, 2010, 17, .	0.7	9
49	Forge-Hardened TiZr Null-Matrix Alloy for Neutron Scattering under Extreme Conditions. Metals, 2015, 5, 2340-2350.	1.0	9
50	Ultrafast olivine-ringwoodite transformation during shock compression. Nature Communications, 2021, 12, 4305.	5.8	9
51	Hydrogen in molten iron at high pressure: The first measurement. Geophysical Monograph Series, 1998, , 249-260.	0.1	8
52	Neutron powder diffraction of small-volume samples at high pressure using compact opposed-anvil cells and focused beam. Journal of Physics: Conference Series, 2012, 377, 012013.	0.3	8
53	Collision and Diffusion Dynamics of Dense Molecular Hydrogen by Diamond Anvil Cell Nuclear Magnetic Resonance. Journal of Physical Chemistry C, 2012, 116, 2179-2182.	1.5	7
54	Elasticity of Hydrated Alâ€Bearing Stishovite and Postâ€Stishovite: Implications for Understanding Regional Seismic V_S Anomalies Along Subducting Slabs in the Lower Mantle. Journal of Geophysical Research: Solid Earth, 2022, 127, .	1.4	7

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55	Large-volume static compression using nano-polycrystalline diamond for opposed anvils in compact cells. Journal of Physics: Conference Series, 2010, 215, 012188.	0.3	6
56	Liquid Structure of Tantalum under Internal Negative Pressure. Physical Review Letters, 2021, 126, 175503.	2.9	6
57	Nonlinear effects of hydration on high-pressure sound velocities of rhyolitic glasses. American Mineralogist, 2021, 106, 1143-1152.	0.9	6
58	Strong hydrogen bonding in a dense hydrous magnesium silicate discovered by neutron Laue diffraction. IUCrJ, 2020, 7, 370-374.	1.0	6
59	Indirect monitoring shot-to-shot shock waves strength reproducibility during pumpâ€“probe experiments. Journal of Applied Physics, 2016, 120, .	1.1	5
60	Phase transition and melting in zircon by nanosecond shock loading. Physics and Chemistry of Minerals, 2022, 49, .	0.3	5
61	Static compression experiments for advanced coupling techniques of laser-driven dynamic compression and precompression target. Journal of Physics: Conference Series, 2010, 215, 012152.	0.3	4
62	Rheological property of H2O ice VI inferred from its self-diffusion: Implications for the mantle dynamics of large icy bodies. Icarus, 2020, 335, 113401.	1.1	4
63	A new gasket material for higher resolution NMR in diamond anvil cells. , 2005, , 503-509.		4
64	Development of High-Pressure Technique for Single-Crystal Magnetic Neutron Diffraction under 10 GPa. Review of High Pressure Science and Technology/Koatsuryoku No Kagaku To Gijutsu, 2010, 20, 72-75.	0.1	4
65	High-Pressure Sciences of Hydrogen Compounds and Expectations for the Pulsed Neutron Source. Review of High Pressure Science and Technology/Koatsuryoku No Kagaku To Gijutsu, 2007, 17, 65-72.	0.1	4
66	Introduction of the High Pressure Neutron Diffraction Projects in J-PARC. Review of High Pressure Science and Technology/Koatsuryoku No Kagaku To Gijutsu, 2009, 19, 15-23.	0.1	4
67	Quasielastic neutron scattering of brucite to analyse hydrogen transport on the atomic scale. Journal of Applied Crystallography, 2018, 51, 1564-1570.	1.9	4
68	Hugoniot equation-of-state and structure of laser-shocked polyimide <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:msub><mml:mi mathvariant="normal">C</mml:mi><mml:mn>22</mml:mn></mml:msub><mml:msub><mml:mi mathvariant="normal">H</mml:mi><mml:mn>10</mml:mn></mml:msub><mml:msub><mml:mi mathvariant="normal">N</mml:mi><mml:mn>2</mml:mn></mml:msub><mml:msub><mml:mi mathvariant="normal">O</mml:mi><mml:mn>5</mml:mn></mml:msub></mml:mrow></mml:math>. Physi	1.1	4
69	High thermal conductivity of stishovite promotes rapid warming of a sinking slab in Earth's mantle. Earth and Planetary Science Letters, 2022, 584, 117477.	1.8	4
70	Diamond Anvil Cell NMR. Review of High Pressure Science and Technology/Koatsuryoku No Kagaku To Gijutsu, 2005, 15, 324-332.	0.1	3
71	Hugoniot and temperature measurements of liquid hydrogen by laser-shock compression. Journal of Physics: Conference Series, 2010, 244, 042018.	0.3	3
72	A High Pressure Experiment of Powder Neutron Diffraction on the HRPD at JRR-3. Review of High Pressure Science and Technology/Koatsuryoku No Kagaku To Gijutsu, 2008, 18, 170-172.	0.1	3

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73	A Peltier cooling diamond anvil cell for low-temperature Raman spectroscopic measurements. Review of Scientific Instruments, 2016, 87, 125107.	0.6	2
74	Water in Early Earth. Journal of Geography (Chigaku Zasshi), 2007, 116, 188-195.	0.1	1
75	Quantitative Analysis of Hydrogen Site and Occupancy in a Deep-Earth Hydrous Mineral by Time-of-Flight Single Crystal Laue Neutron Diffraction. Nihon Kessho Gakkaishi, 2017, 59, 309-315.	0.0	1
76	Powder Neutron Diffraction Using Nano-Polycrystalline Diamond as Opposed Anvils. Review of High Pressure Science and Technology/Koatsuryoku No Kagaku To Gijutsu, 2010, 20, 175-178.	0.1	1
77	Hydrogen bonding and dynamics of methanol by high-pressure diamond anvil cell NMR. Acta Crystallographica Section A: Foundations and Advances, 2005, 61, c468-c468.	0.3	0
78	Fast Diffusion of Molecular Hydrogen in Hydrogen Hydrates. Review of High Pressure Science and Technology/Koatsuryoku No Kagaku To Gijutsu, 2009, 19, 210-216.	0.1	0
79	Hydrogen Site Analyses of Dense Hydrous Mantle Minerals by Pulsed Neutron Powder Diffraction. Review of High Pressure Science and Technology/Koatsuryoku No Kagaku To Gijutsu, 2016, 26, 140-148.	0.1	0
80	In-situ Neutron Diffraction of Iron Hydride in Iron-silicate-water System under High Pressure and High Temperature Condition. Hamon, 2017, 27, 104-108.	0.0	0
81	Laser-shock compression experiment on magnesium hydride. High Energy Density Physics, 2019, 33, 100703.	0.4	0
82	Quasielastic Neutron Scattering for Analyzing Transport Dynamics of Chemically-Bound Hydrogen in Minerals. Nihon Kessho Gakkaishi, 2021, 63, 129-134.	0.0	0
83	Structure and dynamics of hydrogen in materials of Earth and planetary interiors. Ganseki Kobutsu Kagaku, 2021, 50, 31-42.	0.1	0
84	Ultrafast In-Situ Analysis of Shock-Compressed Planetary Materials. Review of High Pressure Science and Technology/Koatsuryoku No Kagaku To Gijutsu, 2021, 31, 166-171.	0.1	0