

Robert C Bowman

List of Publications by Year in descending order

Source: <https://exaly.com/author-pdf/3407747/publications.pdf>

Version: 2024-02-01

115
papers

4,926
citations

109264

35
h-index

95218

68
g-index

117
all docs

117
docs citations

117
times ranked

2712
citing authors

#	ARTICLE	IF	CITATIONS
1	Materials for hydrogen-based energy storage – past, recent progress and future outlook. <i>Journal of Alloys and Compounds</i> , 2020, 827, 153548.	2.8	518
2	Altering Hydrogen Storage Properties by Hydride Destabilization through Alloy Formation: LiH and MgH_2 Destabilized with Si. <i>Journal of Physical Chemistry B</i> , 2004, 108, 13977-13983.	1.2	417
3	Metal hydride hydrogen compressors: A review. <i>International Journal of Hydrogen Energy</i> , 2014, 39, 5818-5851.	3.8	361
4	NMR Confirmation for Formation of $[\text{B}_{12}\text{H}_{12}]^{2-}$ Complexes during Hydrogen Desorption from Metal Borohydrides. <i>Journal of Physical Chemistry C</i> , 2008, 112, 3164-3169.	1.5	280
5	Magnesium borohydride as a hydrogen storage material: Properties and dehydrogenation pathway of unsolvated $\text{Mg}(\text{BH}_4)_2$. <i>International Journal of Hydrogen Energy</i> , 2009, 34, 916-928.	3.8	211
6	Metallic Hydrides I: Hydrogen Storage and Other Gas-Phase Applications. <i>MRS Bulletin</i> , 2002, 27, 688-693.	1.7	166
7	The effect of tin on the degradation of $\text{LaNi}_5\text{-Sn}$ metal hydrides during thermal cycling. <i>Journal of Alloys and Compounds</i> , 1995, 217, 185-192.	2.8	156
8	Structure and vibrational dynamics of isotopically labeled lithium borohydride using neutron diffraction and spectroscopy. <i>Journal of Solid State Chemistry</i> , 2007, 180, 1298-1305.	1.4	153
9	Crystal Structure of $\text{Li}_2\text{B}_{12}\text{H}_{12}$: a Possible Intermediate Species in the Decomposition of LiBH_4 . <i>Inorganic Chemistry</i> , 2008, 47, 9757-9759.	1.9	147
10	Stability and Reversibility of Lithium Borohydrides Doped by Metal Halides and Hydrides. <i>Journal of Physical Chemistry C</i> , 2008, 112, 18661-18671.	1.5	127
11	Gas-based hydride applications: recent progress and future needs. <i>Journal of Alloys and Compounds</i> , 2003, 356-357, 794-799.	2.8	85
12	LiBH_4 in Carbon Aerogel Nanoscaffolds: An NMR Study of Atomic Motions. <i>Journal of Physical Chemistry C</i> , 2010, 114, 4008-4014.	1.5	85
13	Investigation of hydriding properties of $\text{LaNi}_{4.8}\text{Sn}_{0.2}$, $\text{LaNi}_{4.27}\text{Sn}_{0.24}$ and $\text{La}_{0.9}\text{Gd}_{0.1}\text{Ni}_5$ after thermal cycling and aging. <i>Journal of Alloys and Compounds</i> , 1992, 187, 113-135.	2.8	84
14	Atomic Motions in LiBH_4 by NMR. <i>Journal of Physical Chemistry C</i> , 2008, 112, 18706-18710.	1.5	76
15	$\text{LiSc}(\text{BH}_4)_4$ as a Hydrogen Storage Material: Multinuclear High-Resolution Solid-State NMR and First-Principles Density Functional Theory Studies. <i>Journal of Physical Chemistry C</i> , 2009, 113, 9956-9968.	1.5	71
16	Hydrogen Motion in Magnesium Hydride by NMR. <i>Journal of Physical Chemistry C</i> , 2008, 112, 19784-19790.	1.5	68
17	NMR studies of hydrogen diffusion in $\text{LaNi}_5\text{-Y}$ hydrides. <i>Solid State Communications</i> , 1979, 32, 501-506.	0.9	65
18	Metal hydride hydrogen compression: recent advances and future prospects. <i>Applied Physics A: Materials Science and Processing</i> , 2016, 122, 1.	1.1	63

#	ARTICLE	IF	CITATIONS
19	Hydrogen Sorption Behavior of the ScH ₂ ~LiBH ₄ System: Experimental Assesment of Chemical Destabilization Effects. Journal of Physical Chemistry C, 2008, 112, 8481-8485.	1.5	59
20	Amorphous TiCu-Based Additives for Improving Hydrogen Storage Properties of Magnesium Hydride. ACS Applied Materials & Interfaces, 2019, 11, 38868-38879.	4.0	54
21	Discovery of A New Al Species in Hydrogen Reactions of NaAlH ₄ . Journal of Physical Chemistry Letters, 2010, 1, 2412-2416.	2.1	52
22	Sorption coolers using a continuous cycle to produce 20 K for the Planck flight mission. Cryogenics, 2004, 44, 395-401.	0.9	50
23	NMR studies of diffusion in the metallic glassTiCuHx. Physical Review B, 1981, 24, 2328-2333.	1.1	46
24	Metal hydrides based high energy density thermal battery. Journal of Alloys and Compounds, 2015, 645, S184-S189.	2.8	44
25	Hydrogen mobility in crystalline and amorphous Zr2PdHx. Solid State Communications, 1983, 47, 779-782.	0.9	43
26	Strain formation and lattice parameter change in LaNi4.75Sn0.25~H system during the initial activation process. Journal of Alloys and Compounds, 2004, 373, 183-193.	2.8	43
27	Stability of Catalyzed Magnesium Hydride Nanocrystalline During Hydrogen Cycling. Part I: Kinetic Analysis. Journal of Physical Chemistry C, 2015, 119, 22261-22271.	1.5	42
28	NMR studies of the helium distribution in uranium tritide. Physical Review B, 1977, 16, 1828-1843.	1.1	40
29	Hydrogen diffusion in Î²-phase titanium iron hydride. Solid State Communications, 1979, 32, 313-318.	0.9	40
30	Molecular H2 trapped in AlH3 solid. Journal of Alloys and Compounds, 2008, 463, 1-5.	2.8	40
31	Distribution of helium in metal tritides. Nature, 1978, 271, 531-533.	13.7	38
32	Diffusion behavior in titanium-chromium hydrides~†. International Journal of Hydrogen Energy, 1983, 8, 801-808.	3.8	38
33	A study of the properties and NMR spectra of amorphous and crystalline Zr~Pd hydrides. Journal of Non-Crystalline Solids, 1982, 53, 105-122.	1.5	37
34	Reaction Mechanisms in the Li ₃ AlH ₆ /LiBH ₄ and Al/LiBH ₄ Systems for Reversible Hydrogen Storage. Part 2: Solid-State NMR Studies. Journal of Physical Chemistry C, 2011, 115, 6048-6056.	1.5	36
35	Effect of air exposure on hydrogen storage properties of catalyzed magnesium hydride. Journal of Power Sources, 2020, 454, 227936.	4.0	36
36	Exchange of Hydrogen Atoms Between BH ₄ in LiBH ₄ . Journal of Physical Chemistry C, 2009, 113, 5039-5042.	1.5	35

#	ARTICLE	IF	CITATIONS
37	Thermodynamic and degradation studies of LaNi _{4.8} Sn _{0.2} -H using isotherms and calorimetry. Journal of Alloys and Compounds, 1995, 231, 473-478.	2.8	34
38	Hydriding and structural characteristics of thermally cycled and cold-worked Vâ€“0.5at.%C alloy. Journal of Alloys and Compounds, 2008, 452, 312-324.	2.8	34
39	Role of aluminum substitution on hydrogen diffusion in $\hat{1}^2$ -LaNi ₅ âˆ“yAl _y H _x . Journal of the Less Common Metals, 1980, 73, 227-232.	0.9	32
40	Structure of the novel ternary hydrides Li ₄ Tt 2D (Tt = Si and Ge). Acta Crystallographica Section B: Structural Science, 2007, 63, 63-68.	1.8	28
41	Study of Aluminoborane Compound AlB ₄ H ₁₁ for Hydrogen Storage. Journal of Physical Chemistry C, 2009, 113, 2-11.	1.5	27
42	Thermodynamic properties and the degradation of ZrNiH _x at elevated temperatures. Journal of Alloys and Compounds, 1995, 231, 518-523.	2.8	26
43	Long-term thermal cycling studies on LaNi _{5.2} . Journal of Alloys and Compounds, 1993, 199, 93-100.	2.8	25
44	Direct synthesis and NMR characterization of calcium alanate. Journal of Alloys and Compounds, 2007, 446-447, 264-266.	2.8	25
45	Potential and Reaction Mechanism of Liâˆ“Mgâˆ“Alâˆ“Naâˆ“H System for Reversible Hydrogen Storage. Journal of Physical Chemistry C, 2007, 111, 16686-16692.	1.5	25
46	Hydrogenation of Magnesium Nickel Boride for Reversible Hydrogen Storage. Journal of Physical Chemistry Letters, 2010, 1, 69-72.	2.1	25
47	Stability of Catalyzed Magnesium Hydride Nanocrystalline During Hydrogen Cycling. Part II: Microstructure Evolution. Journal of Physical Chemistry C, 2015, 119, 22272-22280.	1.5	25
48	NMR studies of structure and diffusion in metal hydridesâ†. International Journal of Hydrogen Energy, 1977, 1, 421-426.	3.8	24
49	Thermal stabilities of the crystalline and amorphous Ti _y CuH _x systems. Journal of the Less Common Metals, 1986, 116, 375-388.	0.9	24
50	NMR Studies of the Hydrogen Storage Compound NaMgH ₃ . Journal of Physical Chemistry C, 2009, 113, 18414-18419.	1.5	24
51	Proton magnetic resonance studies of TiCuH. Solid State Communications, 1978, 27, 501-505.	0.9	23
52	Roles of Ti-Based Catalysts on Magnesium Hydride and Its Hydrogen Storage Properties. Inorganics, 2021, 9, 36.	1.2	23
53	Degradation study of ZrNiH _{1.5} for use as actuators in gas gap heat switches. Journal of Alloys and Compounds, 2004, 373, 104-114.	2.8	22
54	Isothermal hydrogenation kinetics of ball-milled nano-catalyzed magnesium hydride. Materialia, 2019, 5, 100227.	1.3	21

#	ARTICLE	IF	CITATIONS
55	Dynamics of hydrogen in intermetallic hydrides. Topics in Applied Physics, 1992, , 97-163.	0.4	20
56	Pressure-composition isotherms of TbNiAlH _x . Journal of Alloys and Compounds, 2006, 417, 92-95.	2.8	19
57	Thermodynamic and degradation studies of LaNi ₅ (closely stoichiometric)-H and LaNi ₅ ~xMnx-H with x = 0.5~2.0. Journal of Alloys and Compounds, 1993, 202, 147-159.	2.8	18
58	NMR Study of LiBH ₄ with C ₆₀ . Journal of Physical Chemistry C, 2010, 114, 19862-19866.	1.5	18
59	Metal Hydride Compressors with Gas-Gap Heat Switches: Concept, Development, Testing, and Space Flight Operation for the Planck Sorption Cryocoolers. Inorganics, 2019, 7, 139.	1.2	18
60	NMR studies of electronic structure and hydrogen diffusion in transition metal hydrides. Hyperfine Interactions, 1985, 25, 583-606.	0.2	17
61	Neutron vibrational spectroscopy and first-principles calculations of the ternary hydrides Li ₄ Si ₂ H(D) and Li ₄ Ge ₂ H(D): Electronic structure and lattice dynamics. Physical Review B, 2007, 76, .	1.1	17
62	Mobile Species in NaAlH ₄ . Journal of Physical Chemistry C, 2013, 117, 8105-8113.	1.5	17
63	NMR studies of electronic structure in crystalline and amorphous Zr ₂ PdH _x . Physics Letters, Section A: General, Atomic and Solid State Physics, 1983, 94, 181-184.	0.9	16
64	Hydride phase composition and crystal structure in Zr ₂ PdH _x . Journal of the Less Common Metals, 1987, 129, 197-205.	0.9	16
65	Evaluation of metal hydride compressors for applications in Joule-Thomson cryocoolers. Cryogenics, 1992, 32, 127-137.	0.9	16
66	NMR Study of Anion Dynamics in Solid KAlH ₄ . Journal of Physical Chemistry C, 2014, 118, 5725-5732.	1.5	16
67	Comparison of structures and electronic properties between TiCoH _x and TiFeH _x . Journal of the Less Common Metals, 1987, 130, 69-78.	0.9	15
68	Variation of hydrogen occupation in LaNi _{4.78} Sn _{0.22} D _x along the P-C isotherms studied by in situ neutron powder diffraction. Journal of Alloys and Compounds, 2007, 431, 148-154.	2.8	15
69	Resistometric determination of phase transformations in VH _x and VD _x . Journal of the Less Common Metals, 1980, 75, 207-222.	0.9	14
70	Optical and structural characterization of heavily boron-implanted CdTe. Journal of Crystal Growth, 1988, 86, 768-777.	0.7	13
71	Structural study of the LaNi _{4.6} Ge _{0.4} -D ₂ system using X-ray and neutron powder diffraction. Applied Physics A: Materials Science and Processing, 2002, 74, s1037-s1039.	1.1	13
72	Behavior of vacancy formation and recovery during hydrogenation cycles in LaNi _{4.93} Sn _{0.27} . Journal of Alloys and Compounds, 2009, 477, 205-211.	2.8	13

#	ARTICLE	IF	CITATIONS
73	Proton NMR and magnetic susceptibility study of TiCr _{1.8} H _{1.8} . <i>Materials Letters</i> , 1982, 1, 122-126.	1.3	12
74	Studies of interdiffusion in GemSin strained layer superlattices. <i>Journal of Electronic Materials</i> , 1990, 19, 125-129.	1.0	12
75	Neutron imaging studies of metal-hydride storage beds. <i>International Journal of Hydrogen Energy</i> , 2010, 35, 12837-12845.	3.8	12
76	Characterization and analyses of degradation and recovery of LaNi _{4.78} Sn _{0.22} hydrides following thermal aging. <i>Journal of Alloys and Compounds</i> , 2013, 580, S207-S210.	2.8	12
77	Development of Sorbent Bed Assembly for a Periodic 10K Solid Hydrogen Cryocooler. , 1994, , 1491-1498.		12
78	Thermal expansion coefficients of lithium hydride. <i>Journal of Physics and Chemistry of Solids</i> , 1973, 34, 1754-1756.	1.9	11
79	An Accelerated Rural Training Program. <i>Journal of the American Board of Family Medicine</i> , 2003, 16, 124-130.	0.8	11
80	Temperature dependence of the elastic moduli of polycrystalline LaAl _x Ni _{5-\hat{x}} and LaSn _x Ni _{5+\hat{x}} . <i>Journal of Alloys and Compounds</i> , 2004, 376, 139-144.	2.8	11
81	NMR Studies of NaH. <i>Journal of Physical Chemistry C</i> , 2012, 116, 18649-18654.	1.5	10
82	Density of trapped gas in heavily-irradiated lithium hydride. <i>Journal of Nuclear Materials</i> , 1988, 154, 318-331.	1.3	9
83	Isotherm measurements of high-pressure metal hydrides for hydrogen compressors. <i>JPhys Energy</i> , 2021, 3, 034004.	2.3	9
84	EPR of ultraviolet irradiated lithium hydride crystals. <i>Solid State Communications</i> , 1972, 11, 1489-1493.	0.9	8
85	Hydrogen absorption by LaCu ₅ and nuclear magnetic resonance (NMR) studies of hydrogen diffusion in β -LaCu ₅ hydride. <i>Journal of the Less Common Metals</i> , 1987, 129, 261-270.	0.9	8
86	Some physical properties of Zr ₂ CuH _{4.2} in relation to those observed for other MoSi ₂ -type hydrides. <i>Journal of Alloys and Compounds</i> , 1992, 185, 7-17.	2.8	8
87	The effect of heating rate on the reversible hydrogen storage based on reactions of Li ₃ AlH ₆ with LiNH ₂ . <i>Journal of Power Sources</i> , 2008, 185, 1354-1358.	4.0	8
88	Swelling and outgassing of tritiated lithium hydride compacts. <i>Journal of Nuclear Materials</i> , 1989, 168, 1-11.	1.3	7
89	The effect of cold-work on hysteresis in the V-H(D) system. <i>Scripta Metallurgica Et Materialia</i> , 1993, 28, 355-359.	1.0	7
90	EPR studies of rhodium in LiH and LiD single crystals. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 1977, 60, 353-354.	0.9	6

#	ARTICLE	IF	CITATIONS
91	Swelling and outgassing of heavily-irradiated lithium hydride. Journal of Nuclear Materials, 1988, 154, 308-317.	1.3	6
92	NMR study of a temperature-induced structural transition in ZrBe ₂ D _x . Journal of Alloys and Compounds, 2002, 330-332, 179-182.	2.8	6
93	Community-driven Medical Education: The Rural Component. Journal of Rural Health, 2003, 19, 214-217.	1.6	6
94	Determination of deuterium site occupation in Zr ₄ Pd ₂ OD _{4.5} . Journal of Alloys and Compounds, 2003, 361, 108-112.	2.8	6
95	Structure of Plumes from Burning Aluminized Propellant Estimated Using Fan Beam Emission Tomography. AIAA Journal, 2007, 45, 2259-2266.	1.5	6
96	Effects of NaOH in Solid NaH: Solution/Segregation Phase Transition and Diffusion Acceleration. Journal of Physical Chemistry C, 2013, 117, 23575-23581.	1.5	6
97	Study of ultra-thin Ge/Si strained layer superlattice. Journal of Crystal Growth, 1989, 95, 451-454.	0.7	5
98	Vacancy ordering phase transition in ZrBe ₂ (H/D) _x : NMR and electronic structure study. Physical Review B, 2003, 67, .	1.1	5
99	Comparison of spin relaxation in the metal-hydrogen systems ZrNiH _x and ZrNiD _x . Physical Review B, 2006, 73, .	1.1	5
100	A high throughput dynamic method for characterizing thermodynamic properties of catalyzed magnesium hydrides by thermogravimetric analysis. Physical Chemistry Chemical Physics, 2021, 23, 15374-15383.	1.3	5
101	Rate of hydrogen motion in Ni-substituted LaNi ₅ H _x from NMR. Journal of Alloys and Compounds, 2007, 446-447, 495-498.	2.8	4
102	Magnetic alignment in nominally non-magnetic hexagonal metal hydrides: NMR. Solid State Nuclear Magnetic Resonance, 2003, 24, 254-262.	1.5	3
103	Low and high-pressure hydriding of Vâ€“0.5at.%C. Journal of Nuclear Materials, 2010, 399, 55-61.	1.3	3
104	Hydrogen isotherms for annealed, un-activated LaNi ₅ (273â€“333K). Journal of Alloys and Compounds, 2013, 574, 443-450.	2.8	3
105	Detection of Fluorite-Structured MgD ₂ /TiD ₂ : Deuterium NMR. Journal of Physical Chemistry C, 2015, 119, 7656-7661.	1.5	3
106	Proton and deuteron NMR in amorphous TiCuD _x . Materials Science and Engineering, 1988, 97, 427-430.	0.1	2
107	Thin Epitaxial Silicon Regrowth Using Ion Implantation Amorphization Techniques. Journal of the Electrochemical Society, 1988, 135, 974-979.	1.3	2
108	Roles of Hydrogen in Space Explorations. AIP Conference Proceedings, 2006, , .	0.3	2

#	ARTICLE	IF	CITATIONS
109	Deuterium exchange dynamics in Zr ₂ NiD _{4.8} studied by 2H MAS NMR spectroscopy. Journal of Alloys and Compounds, 2015, 645, S361-S364.	2.8	2
110	Nuclear magnetic relaxation studies of BH 4 in metal Borohydrides. Bulletin of the Korean Chemical Society, 0, , .	1.0	2
111	NMR Studies of the Hydrides of Disordered and Amorphous Alloys. NATO ASI Series Series B: Physics, 1986, , 237-262.	0.2	2
112	In situ X-ray and neutron powder diffraction study of LaNi _{5-x} Sn _x â€”H systems. Materials Research Society Symposia Proceedings, 2004, 837, 19.	0.1	1
113	The observation of the lattice defect formation during hydrogenation and dehydrogenation in La(Ni,Sn) ₅ by in-situ positron lifetime measurement. Materials Research Society Symposia Proceedings, 2005, 885, 1.	0.1	1
114	Thermal Hydrogen Compression Based on Metal Hydride Materials. , 2021, , 171-192.		1
115	Picosecond transient photoreflectance measurements of ion-implanted GaAs. Applied Surface Science, 1991, 50, 337-340.	3.1	0