

Robert C Bowman

List of Publications by Year in Descending Order

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

113
papers

4,081
citations

33
h-index

61
g-index

117
ext. papers

4,456
ext. citations

4.6
avg, IF

5.1
L-index

#	Paper	IF	Citations
113	Isotherm measurements of high-pressure metal hydrides for hydrogen compressors. <i>JPhys Energy</i> , 2021 , 3, 034004	4.9	4
112	Roles of Ti-Based Catalysts on Magnesium Hydride and Its Hydrogen Storage Properties. <i>Inorganics</i> , 2021 , 9, 36	2.9	8
111	A high throughput dynamic method for characterizing thermodynamic properties of catalyzed magnesium hydrides by thermogravimetric analysis. <i>Physical Chemistry Chemical Physics</i> , 2021 , 23, 15374-15383	2.6	1
110	Thermal Hydrogen Compression Based on Metal Hydride Materials 2021 , 171-192		0
109	Effect of air exposure on hydrogen storage properties of catalyzed magnesium hydride. <i>Journal of Power Sources</i> , 2020 , 454, 227936	8.9	14
108	Materials for hydrogen-based energy storage [past, recent progress and future outlook. <i>Journal of Alloys and Compounds</i> , 2020 , 827, 153548	5.7	264
107	Amorphous TiCu-Based Additives for Improving Hydrogen Storage Properties of Magnesium Hydride. <i>ACS Applied Materials & Interfaces</i> , 2019 , 11, 38868-38879	9.5	24
106	Isothermal hydrogenation kinetics of ball-milled nano-catalyzed magnesium hydride. <i>Materialia</i> , 2019 , 5, 100227	3.2	12
105	Metal Hydride Compressors with Gas-Gap Heat Switches: Concept, Development, Testing, and Space Flight Operation for the Planck Sorption Cryocoolers. <i>Inorganics</i> , 2019 , 7, 139	2.9	8
104	Metal hydride hydrogen compression: recent advances and future prospects. <i>Applied Physics A: Materials Science and Processing</i> , 2016 , 122, 1	2.6	42
103	Detection of Fluorite-Structured MgD ₂ /TiD ₂ : Deuterium NMR. <i>Journal of Physical Chemistry C</i> , 2015 , 119, 7656-7661	3.8	3
102	Metal hydrides based high energy density thermal battery. <i>Journal of Alloys and Compounds</i> , 2015 , 645, S184-S189	5.7	27
101	Stability of Catalyzed Magnesium Hydride Nanocrystalline During Hydrogen Cycling. Part I: Kinetic Analysis. <i>Journal of Physical Chemistry C</i> , 2015 , 119, 22261-22271	3.8	36
100	Stability of Catalyzed Magnesium Hydride Nanocrystalline During Hydrogen Cycling. Part II: Microstructure Evolution. <i>Journal of Physical Chemistry C</i> , 2015 , 119, 22272-22280	3.8	23
99	Deuterium exchange dynamics in Zr ₂ NiD _{4.8} studied by 2H MAS NMR spectroscopy. <i>Journal of Alloys and Compounds</i> , 2015 , 645, S361-S364	5.7	1
98	Metal hydride hydrogen compressors: A review. <i>International Journal of Hydrogen Energy</i> , 2014 , 39, 5818-5851	5.51	269
97	NMR Study of Anion Dynamics in Solid KAlH ₄ . <i>Journal of Physical Chemistry C</i> , 2014 , 118, 5725-5732	3.8	15

96	Effects of NaOH in Solid NaH: Solution/Segregation Phase Transition and Diffusion Acceleration. <i>Journal of Physical Chemistry C</i> , 2013 , 117, 23575-23581	3.8	6
95	Hydrogen isotherms for annealed, un-activated LaNi ₅ (273B33K). <i>Journal of Alloys and Compounds</i> , 2013 , 574, 443-450	5.7	3
94	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	5.7	10
93	Mobile Species in NaAlH ₄ . <i>Journal of Physical Chemistry C</i> , 2013 , 117, 8105-8113	3.8	17
92	NMR Studies of NaH. <i>Journal of Physical Chemistry C</i> , 2012 , 116, 18649-18654	3.8	10
91	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. <i>Journal of Physical Chemistry C</i> , 2011 , 115, 6048-6056	3.8	35
90	Discovery of A New Al Species in Hydrogen Reactions of NaAlH ₄ . <i>Journal of Physical Chemistry Letters</i> , 2010 , 1, 2412-2416	6.4	44
89	NMR Study of LiBH ₄ with C ₆₀ . <i>Journal of Physical Chemistry C</i> , 2010 , 114, 19862-19866	3.8	17
88	Hydrogenation of Magnesium Nickel Boride for Reversible Hydrogen Storage. <i>Journal of Physical Chemistry Letters</i> , 2010 , 1, 69-72	6.4	23
87	LiBH ₄ in Carbon Aerogel Nanoscaffolds: An NMR Study of Atomic Motions. <i>Journal of Physical Chemistry C</i> , 2010 , 114, 4008-4014	3.8	79
86	Low and high-pressure hydriding of V _{0.5} at.%C. <i>Journal of Nuclear Materials</i> , 2010 , 399, 55-61	3.3	3
85	Neutron imaging studies of metal-hydride storage beds. <i>International Journal of Hydrogen Energy</i> , 2010 , 35, 12837-12845	6.7	10
84	Magnesium borohydride as a hydrogen storage material: Properties and dehydrogenation pathway of unsolvated Mg(BH ₄) ₂ . <i>International Journal of Hydrogen Energy</i> , 2009 , 34, 916-928	6.7	188
83	Exchange of Hydrogen Atoms Between BH ₄ in LiBH ₄ . <i>Journal of Physical Chemistry C</i> , 2009 , 113, 5039-5042	3.8	34
82	Behavior of vacancy formation and recovery during hydrogenation cycles in LaNi _{4.93} Sn _{0.27} . <i>Journal of Alloys and Compounds</i> , 2009 , 477, 205-211	5.7	13
81	NMR Studies of the Hydrogen Storage Compound NaMgH ₃ . <i>Journal of Physical Chemistry C</i> , 2009 , 113, 18414-18419	3.8	23
80	LiSc(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	3.8	65
79	Study of Aluminoborane Compound AlB ₄ H ₁₁ for Hydrogen Storage. <i>Journal of Physical Chemistry C</i> , 2009 , 113, 2-11	3.8	24

78	Hydrogen Motion in Magnesium Hydride by NMR. <i>Journal of Physical Chemistry C</i> , 2008 , 112, 19784-19790	64
77	Stability and Reversibility of Lithium Borohydrides Doped by Metal Halides and Hydrides. <i>Journal of Physical Chemistry C</i> , 2008 , 112, 18661-18671	3.8 117
76	Hydriding and structural characteristics of thermally cycled and cold-worked V0.5 at.%C alloy. <i>Journal of Alloys and Compounds</i> , 2008 , 452, 312-324	5.7 33
75	Molecular H ₂ trapped in AlH ₃ solid. <i>Journal of Alloys and Compounds</i> , 2008 , 463, 1-5	5.7 36
74	NMR Confirmation for Formation of [B ₁₂ H ₁₂] ²⁻ Complexes during Hydrogen Desorption from Metal Borohydrides. <i>Journal of Physical Chemistry C</i> , 2008 , 112, 3164-3169	3.8 260
73	Crystal structure of Li ₂ B ₁₂ H ₁₂ : a possible intermediate species in the decomposition of LiBH ₄ . <i>Inorganic Chemistry</i> , 2008 , 47, 9757-9	5.1 133
72	Atomic Motions in LiBH ₄ by NMR. <i>Journal of Physical Chemistry C</i> , 2008 , 112, 18706-18710	3.8 69
71	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	8.9 8
70	Hydrogen Sorption Behavior of the ScH ₂ LiBH ₄ System: Experimental Assessment of Chemical Destabilization Effects. <i>Journal of Physical Chemistry C</i> , 2008 , 112, 8481-8485	3.8 56
69	Potential and Reaction Mechanism of LiMgAlNH ₄ System for Reversible Hydrogen Storage. <i>Journal of Physical Chemistry C</i> , 2007 , 111, 16686-16692	3.8 23
68	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	3.3 151
67	Structure of the novel ternary hydrides Li ₄ Tt ₂ D (Tt=Si and Ge). <i>Acta Crystallographica Section B: Structural Science</i> , 2007 , 63, 63-8	27
66	Structure of Plumes from Burning Aluminized Propellant Estimated Using Fan Beam Emission Tomography. <i>AIAA Journal</i> , 2007 , 45, 2259-2266	2.1 2
65	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. <i>Physical Review B</i> , 2007 , 76,	3.3 17
64	Variation of hydrogen occupation in LaNi _{4.78} Sn _{0.22} D _x along the P-T isotherms studied by in situ neutron powder diffraction. <i>Journal of Alloys and Compounds</i> , 2007 , 431, 148-154	5.7 13
63	Direct synthesis and NMR characterization of calcium alanate. <i>Journal of Alloys and Compounds</i> , 2007 , 446-447, 264-266	5.7 21
62	Rate of hydrogen motion in Ni-substituted LaNi ₅ H _x from NMR. <i>Journal of Alloys and Compounds</i> , 2007 , 446-447, 495-498	5.7 2
61	Comparison of spin relaxation in the metal-hydrogen systems ZrNiH _x and ZrNiD _x . <i>Physical Review B</i> , 2006 , 73,	3.3 5

60	Pressure-composition isotherms of TbNiAlH _x . <i>Journal of Alloys and Compounds</i> , 2006 , 417, 92-95	5-7	18
59	The observation of the lattice defect formation during the hydrogenation and dehydrogenation in La(Ni,Sn) ₅ by in-situ positron lifetime measurement. <i>Materials Research Society Symposia Proceedings</i> , 2005 , 885, 1		1
58	In situ X-ray and neutron powder diffraction study of LaNi _{5-x} Sn _x -H systems. <i>Materials Research Society Symposia Proceedings</i> , 2004 , 837, 19		1
57	Sorption coolers using a continuous cycle to produce 20 K for the Planck flight mission. <i>Cryogenics</i> , 2004 , 44, 395-401	1.8	43
56	Strain formation and lattice parameter change in LaNi _{4.75} Sn _{0.25} H system during the initial activation process. <i>Journal of Alloys and Compounds</i> , 2004 , 373, 183-193	5-7	39
55	Degradation study of ZrNiH _{1.5} for use as actuators in gas gap heat switches. <i>Journal of Alloys and Compounds</i> , 2004 , 373, 104-114	5-7	19
54	Temperature dependence of the elastic moduli of polycrystalline LaAl _x Ni _{5-x} and LaSn _x Ni _{5-x} . <i>Journal of Alloys and Compounds</i> , 2004 , 376, 139-144	5-7	11
53	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	3-4	378
52	An accelerated rural training program. <i>Journal of the American Board of Family Medicine</i> , 2003 , 16, 124-30.6		7
51	Magnetic alignment in nominally non-magnetic hexagonal metal hydrides: NMR. <i>Solid State Nuclear Magnetic Resonance</i> , 2003 , 24, 254-62	3-1	3
50	Community-driven medical education: the rural component. <i>Journal of Rural Health</i> , 2003 , 19, 214-7	4.6	6
49	Gas-based hydride applications: recent progress and future needs. <i>Journal of Alloys and Compounds</i> , 2003 , 356-357, 794-799	5-7	73
48	Determination of deuterium site occupation in Zr ₄ Pd ₂ OD _{4.5} . <i>Journal of Alloys and Compounds</i> , 2003 , 361, 108-112	5-7	3
47	Vacancy ordering phase transition in ZrBe ₂ (H/D) _x : NMR and electronic structure study. <i>Physical Review B</i> , 2003 , 67,	3-3	4
46	Structural study of the LaNi _{4.6} Ge _{0.4} -D ₂ system using X-ray and neutron powder diffraction. <i>Applied Physics A: Materials Science and Processing</i> , 2002 , 74, s1037-s1039	2.6	12
45	Metallic Hydrides I: Hydrogen Storage and Other Gas- Phase Applications. <i>MRS Bulletin</i> , 2002 , 27, 688-693.2		143
44	NMR study of a temperature-induced structural transition in ZrBe ₂ D _x . <i>Journal of Alloys and Compounds</i> , 2002 , 330-332, 179-182	5-7	5
43	Thermodynamic properties and the degradation of ZrNiH _x at elevated temperatures. <i>Journal of Alloys and Compounds</i> , 1995 , 231, 518-523	5-7	22

42	Thermodynamic and degradation studies of LaNi _{4.8} Sn _{0.2} -H using isotherms and calorimetry. <i>Journal of Alloys and Compounds</i> , 1995 , 231, 473-478	5.7	31
41	The effect of tin on the degradation of LaNi ₅ Sn metal hydrides during thermal cycling. <i>Journal of Alloys and Compounds</i> , 1995 , 217, 185-192	5.7	127
40	Development of Sorbent Bed Assembly for a Periodic 10K Solid Hydrogen Cryocooler 1994 , 1491-1498		10
39	Thermodynamic and degradation studies of LaNi ₅ (closely stoichiometric)-H and LaNi _{5-x} Mnx-H with x = 0.5-0. <i>Journal of Alloys and Compounds</i> , 1993 , 202, 147-159	5.7	18
38	The effect of cold-work on hysteresis in the V-H(D) system. <i>Scripta Metallurgica Et Materialia</i> , 1993 , 28, 355-359		7
37	Long-term thermal cycling studies on LaNi _{5.2} . <i>Journal of Alloys and Compounds</i> , 1993 , 199, 93-100	5.7	20
36	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	5.7	7
35	Investigation of hydriding properties of LaNi _{4.8} Sn _{0.2} , LaNi _{4.27} Sn _{0.24} and La _{0.9} Gd _{0.1} Ni ₅ after thermal cycling and aging. <i>Journal of Alloys and Compounds</i> , 1992 , 187, 113-135	5.7	75
34	Dynamics of hydrogen in intermetallic hydrides. <i>Topics in Applied Physics</i> , 1992 , 97-163	0.5	12
33	Evaluation of metal hydride compressors for applications in Joule-Thomson cryocoolers. <i>Cryogenics</i> , 1992 , 32, 127-137	1.8	12
32	Picosecond transient photoreflectance measurements of ion-implanted GaAs. <i>Applied Surface Science</i> , 1991 , 50, 337-340	6.7	
31	Studies of interdiffusion in Ge/Si strained layer superlattices. <i>Journal of Electronic Materials</i> , 1990 , 19, 125-129	1.9	11
30	Study of ultra-thin Ge/Si strained layer superlattice. <i>Journal of Crystal Growth</i> , 1989 , 95, 451-454	1.6	5
29	Swelling and outgassing of tritiated lithium hydride compacts. <i>Journal of Nuclear Materials</i> , 1989 , 168, 1-11	3.3	6
28	Optical and structural characterization of heavily boron-implanted CdTe. <i>Journal of Crystal Growth</i> , 1988 , 86, 768-777	1.6	10
27	Swelling and outgassing of heavily-irradiated lithium hydride. <i>Journal of Nuclear Materials</i> , 1988 , 154, 308-317	3.3	5
26	Density of trapped gas in heavily-irradiated lithium hydride. <i>Journal of Nuclear Materials</i> , 1988 , 154, 318-331	3.3	7
25	Proton and deuteron NMR in amorphous TiCuD _x . <i>Materials Science and Engineering</i> , 1988 , 97, 427-430		2

24	Thin Epitaxial Silicon Regrowth Using Ion Implantation Amorphization Techniques. <i>Journal of the Electrochemical Society</i> , 1988 , 135, 974-979	3.9	2
23	Hydride phase composition and crystal structure in Zr ₂ PdH _x . <i>Journal of the Less Common Metals</i> , 1987 , 129, 197-205		16
22	Hydrogen absorption by LaCu ₅ and nuclear magnetic resonance (NMR) studies of hydrogen diffusion in δ -LaCu ₅ hydride. <i>Journal of the Less Common Metals</i> , 1987 , 129, 261-270		7
21	Comparison of structures and electronic properties between TiCoH _x and TiFeH _x . <i>Journal of the Less Common Metals</i> , 1987 , 130, 69-78		10
20	Thermal stabilities of the crystalline and amorphous Ti _y CuH _x systems. <i>Journal of the Less Common Metals</i> , 1986 , 116, 375-388		21
19	NMR Studies of the Hydrides of Disordered and Amorphous Alloys. <i>NATO ASI Series Series B: Physics</i> , 1986 , 237-262		1
18	NMR studies of electronic structure and hydrogen diffusion in transition metal hydrides. <i>Hyperfine Interactions</i> , 1985 , 25, 583-606	0.8	16
17	Diffusion behavior in titanium-chromium hydrides?. <i>International Journal of Hydrogen Energy</i> , 1983 , 8, 801-808	6.7	37
16	NMR studies of electronic structure in crystalline and amorphous Zr ₂ PdH _x . <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 1983 , 94, 181-184	2.3	16
15	Hydrogen mobility in crystalline and amorphous Zr ₂ PdH _x . <i>Solid State Communications</i> , 1983 , 47, 779-782	1.6	41
14	Proton NMR and magnetic susceptibility study of TiCr _{1.8} H _{1x} . <i>Materials Letters</i> , 1982 , 1, 122-126	3.3	12
13	A study of the properties and NMR spectra of amorphous and crystalline Zr ₂ Pd hydrides. <i>Journal of Non-Crystalline Solids</i> , 1982 , 53, 105-122	3.9	34
12	NMR studies of diffusion in the metallic glass TiCuH _x . <i>Physical Review B</i> , 1981 , 24, 2328-2333	3.3	42
11	Resistometric determination of phase transformations in VH _x and VD _x . <i>Journal of the Less Common Metals</i> , 1980 , 75, 207-222		14
10	Role of aluminum substitution on hydrogen diffusion in δ -LaNi ₅ Al _y H _x . <i>Journal of the Less Common Metals</i> , 1980 , 73, 227-232		30
9	NMR studies of hydrogen diffusion in δ -LaNi ₅ Al _y hydrides. <i>Solid State Communications</i> , 1979 , 32, 501-506	1.6	59
8	Hydrogen diffusion in β -phase titanium iron hydride. <i>Solid State Communications</i> , 1979 , 32, 313-318	1.6	36
7	Distribution of helium in metal tritides. <i>Nature</i> , 1978 , 271, 531-533	50.4	35

6	Proton magnetic resonance studies of TiCuH. <i>Solid State Communications</i> , 1978 , 27, 501-505	1.6	22
5	NMR studies of the helium distribution in uranium tritide. <i>Physical Review B</i> , 1977 , 16, 1828-1843	3.3	36
4	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	2.3	6
3	NMR studies of structure and diffusion in metal hydrides?. <i>International Journal of Hydrogen Energy</i> , 1977 , 1, 421-426	6.7	23
2	Thermal expansion coefficients of lithium hydride. <i>Journal of Physics and Chemistry of Solids</i> , 1973 , 34, 1754-1756	3.9	10
1	EPR of ultraviolet irradiated lithium hydride crystals. <i>Solid State Communications</i> , 1972 , 11, 1489-1493	1.6	7