Gillian R Goward

List of Publications by Year
in descending order

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119 papers	4,643 citations	81839 39 h-index	114418 63 g-index
125 all docs	125 docs citations	125 times ranked	5685 citing authors

#	Article	IF	Citations
1	Boosting Solidâ€State Diffusivity and Conductivity in Lithium Superionic Argyrodites by Halide Substitution. Angewandte Chemie - International Edition, 2019, 58, 8681-8686.	7.2	325
2	Lithium Polyacrylate (LiPAA) as an Advanced Binder and a Passivating Agent for Highâ€Voltage Liâ€Ion Batteries. Advanced Energy Materials, 2015, 5, 1501008.	10.2	190
3	Direct Measurement of Surface Termination Groups and Their Connectivity in the 2D MXene V₂CT_x Using NMR Spectroscopy. Journal of Physical Chemistry C, 2015, 119, 13713-13720.	1.5	169
4	High-Resolution Solid-State NMR Studies of Imidazole-Based Proton Conductors:â€‰ Structure Motifs and Chemical Exchange from 1H NMR. Journal of Physical Chemistry B, 2002, 106, 9322-9334.	1.2	164
5	Impact of Lithium Bis(oxalate)borate Electrolyte Additive on the Performance of High-Voltage Spinel/Graphite Li-Ion Batteries. Journal of Physical Chemistry C, 2013, 117, 22603-22612.	1.5	159
6	The true crystal structure of Li17M4 (M=Ge, Sn, Pb)â€“revised from Li22M5. Journal of Alloys and Compounds, 2001, 329, 82-91.	2.8	125
7	7Li NMR and Two-Dimensional Exchange Study of Lithium Dynamics in Monoclinic Li3V2(PO4)3. Journal of Physical Chemistry B, 2006, 110, 7171-7177.	1.2	122
8	Poly(pyrrole) and poly(thiophene)/vanadium oxide interleaved nanocomposites: positive electrodes for lithium batteries. Electrochimica Acta, 1998, 43, 1307-1313.	2.6	120
9	Benzoxazine Oligomers:Â Evidence for a Helical Structure from Solid-State NMR Spectroscopy and DFT-Based Dynamics and Chemical Shift Calculations. Journal of the American Chemical Society, 2003, 125, 5792-5800.	6.6	116
10	Solid-State NMR Study of Two Classic Proton Conducting Polymers:Â Nafion and Sulfonated Poly(ether) Tj ETQq0 0 0 rgBT /Overlock 10	2.2	112
11	Structure and Electrochemistry of Two-Electron Redox Couples in Lithium Metal Fluorophosphates Based on the Tavorite Structure. Chemistry of Materials, 2011, 23, 5138-5148.	3.2	107
12	Proton Dynamics of Nafion and Nafion/SiO2Composites by Solid State NMR and Pulse Field Gradient NMR. Macromolecules, 2007, 40, 1529-1537.	2.2	97
13	6Li NMR Studies of Cation Disorder and Transition Metal Ordering in Li[Ni1/3Mn1/3Co1/3]O2 Using Ultrafast Magic Angle Spinning. Chemistry of Materials, 2005, 17, 6560-6566.	3.2	95
14	Monitoring the Electrochemical Processes in the Lithiumâ€“Air Battery by Solid State NMR Spectroscopy. Journal of Physical Chemistry C, 2013, 117, 26929-26939.	1.5	92
15	Visualization of Steady-State Ionic Concentration Profiles Formed in Electrolytes during Li-Ion Battery Operation and Determination of Mass-Transport Properties by in Situ Magnetic Resonance Imaging. Journal of the American Chemical Society, 2016, 138, 7992-7999.	6.6	86
16	Detection of Electrochemical Reaction Products from the Sodiumâ€“Oxygen Cell with Solid-State ²³Na NMR Spectroscopy. Journal of the American Chemical Society, 2017, 139, 595-598.	6.6	81
17	Direct Detection of Discharge Products in Lithiumâ€“Oxygen Batteries by Solidâ€State NMR Spectroscopy. Angewandte Chemie - International Edition, 2012, 51, 8560-8563.	7.2	75
18	On the Nature of Li Insertion in Tin Composite Oxide Glasses. Electrochemical and Solid-State Letters, 1999, 2, 367.	2.2	71

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19	Accurate Characterization of Ion Transport Properties in Binary Symmetric Electrolytes Using In Situ NMR Imaging and Inverse Modeling. Journal of Physical Chemistry B, 2015, 119, 12238-12248.	1.2	71
20	Site Occupation of Ga and Al in Stabilized Cubic Li_{7â€“3(x+y)}Ga_xAl_yLa₃Zr₂O₁₂ Garnets As Deduced from ²⁷Al and ⁷¹Ga MAS NMR at Ultrahigh Magnetic Fields. Chemistry of Materials, 2015, 27, 3135-3142.	3.2	65
21	Study of Lithium Dynamics in Monoclinic Li₃Fe₂(PO₄)₃ using ⁶Li VT and 2D Exchange MAS NMR Spectroscopy. Chemistry of Materials, 2010, 22, 769-775.	3.2	62
22	Influence of Aliovalent Cation Substitution and Mechanical Compression on Li-Ion Conductivity and Diffusivity in Argyrodite Solid Electrolytes. Chemistry of Materials, 2021, 33, 146-157.	3.2	62
23	Layered Lithium Vanadium Fluorophosphate, Li₅V(PO₄)₂F₂: A 4 V Class Positive Electrode Material for Lithium-Ion Batteries. Chemistry of Materials, 2008, 20, 4240-4248.	3.2	61
24	Three-dimensional investigation of cycling-induced microstructural changes in lithium-ion battery cathodes using focused ion beam/scanning electron microscopy. Journal of Power Sources, 2016, 306, 300-308.	4.0	60
25	Slice-Selective NMR Diffusion Measurements: A Robust and Reliable Tool for In Situ Characterization of Ion-Transport Properties in Lithium-Ion Battery Electrolytes. Journal of Physical Chemistry Letters, 2013, 4, 3940-3944.	2.1	59
26	In Situ Magic-Angle Spinning ⁷Li NMR Analysis of a Full Electrochemical Lithium-Ion Battery Using a Jelly Roll Cell Design. Journal of the American Chemical Society, 2019, 141, 13758-13761.	6.6	56
27	Ex Situ ²³Na Solid-State NMR Reveals the Local Na-Ion Distribution in Carbon-Coated Na₂FePO₄F during Electrochemical Cycling. Chemistry of Materials, 2016, 28, 7645-7656.	3.2	54
28	Electrochemical and multinuclear solid-state NMR studies of tin composite oxide glasses as anodes for Li ion batteries. Journal of Materials Chemistry, 2000, 10, 1241-1249.	6.7	53
29	Polymer-Functionalized Carbon Nanotubes Investigated by Solid-State Nuclear Magnetic Resonance and Scanning Tunneling Microscopy. Journal of Physical Chemistry B, 2004, 108, 11412-11418.	1.2	52
30	Unraveling the Rapid Performance Decay of Layered High-Energy Cathodes: From Nanoscale Degradation to Drastic Bulk Evolution. ACS Nano, 2018, 12, 2708-2718.	7.3	52
31	Investigation of an Nï¿½ï¿½H hydrogen bond in a solid benzoxazine dimer by1H-15N NMR correlation techniques under fast magic-angle spinning. Magnetic Resonance in Chemistry, 2001, 39, S5-S17.	1.1	51
32	Spatially resolved surface valence gradient and structural transformation of lithium transition metal oxides in lithium-ion batteries. Physical Chemistry Chemical Physics, 2016, 18, 29064-29075.	1.3	51
33	A Lithium Oxythioborosilicate Solid Electrolyte Glass with Superionic Conductivity. Advanced Energy Materials, 2020, 10, 1902783.	10.2	50
34	Operando Mapping of Li Concentration Profiles and Phase Transformations in Graphite Electrodes by Magnetic Resonance Imaging and Nuclear Magnetic Resonance Spectroscopy. Journal of Physical Chemistry C, 2018, 122, 21784-21791.	1.5	47
35	Solid State NMR Spectroscopic Investigations of Model Compounds for Imidazole-Based Proton Conductors. Journal of Physical Chemistry B, 2004, 108, 18500-18508.	1.2	46
36	Determination of Mass Transfer Parameters and Ionic Association of LiPF₆: Organic Carbonates Solutions. Journal of the Electrochemical Society, 2017, 164, A912-A916.	1.3	46

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37	NMR chemical shifts in periodic systems from first principles. Computer Physics Communications, 2002, 147, 707-710.	3.0	45
38	Boosting Solidâ€State Diffusivity and Conductivity in Lithium Superionic Argyrodites by Halide Substitution. Angewandte Chemie, 2019, 131, 8773-8778.	1.6	44
39	Study of Imidazole-Based Proton-Conducting Composite Materials Using Solid-State NMR. Chemistry of Materials, 2005, 17, 1605-1612.	3.2	40
40	Phosphorus and Nitrogen Centers in Doped Graphene and Carbon Nanotubes Analyzed through Solid-State NMR. Journal of Physical Chemistry C, 2018, 122, 6593-6601.	1.5	40
41	Manganese sequestration and improved high-temperature cycling of Li-ion batteries by polymeric aza-15-crown-5. Journal of Power Sources, 2014, 272, 1134-1141.	4.0	39
42	Reorientation phenomena in imidazolium methyl sulfonate as probed by advanced solid-state NMR. Solid State Nuclear Magnetic Resonance, 2003, 24, 150-162.	1.5	37
43	How to Control the Discharge Products in Naâ€“O₂ Cells: Direct Evidence toward the Role of Functional Groups at the Air Electrode Surface. Journal of Physical Chemistry Letters, 2017, 8, 4794-4800.	2.1	36
44	Unraveling the Complex Hydrogen Bonding of a Dual-Functionality Proton Conductor Using Ultrafast Magic Angle Spinning NMR. Chemistry of Materials, 2006, 18, 4747-4754.	3.2	35
45	⁶Li 1D EXSY NMR Spectroscopy: A New Tool for Studying Lithium Dynamics in Paramagnetic Materials Applied to Monoclinic Li₂VPO₄F. Journal of Physical Chemistry C, 2011, 115, 22603-22608.	1.5	32
46	Manganese Sequestration and Li-Ion Batteries Durability Enhancement by Polymeric 18-Crown-6 Ethers. Journal of the Electrochemical Society, 2014, 161, A1213-A1217.	1.3	31
47	⁶Li{³¹P} Rotational-Echo, Double-Resonance Studies of Lithium Ion Site Dynamics in Li₃V₂(PO₄)₃. Journal of Physical Chemistry C, 2008, 112, 2215-2221.	1.5	30
48	Influence of particle size on solid solution formation and phase interfaces in Li0.5FePO4 revealed by 31P and 7Li solid state NMR spectroscopy. Physical Chemistry Chemical Physics, 2011, 13, 5171.	1.3	29
49	Combined NMR and molecular dynamics modeling study of transport properties in sulfonamide based deep eutectic lithium electrolytes: LiTFSI based binary systems. Physical Chemistry Chemical Physics, 2016, 18, 6657-6667.	1.3	29
50	NMR chemical shifts in proton conducting crystals from first principles. Computational and Theoretical Chemistry, 2003, 625, 283-288.	1.5	28
51	A Search for Low-Irreversible Capacity and High-Reversible Capacity Positive Electrode Materials in the Liâ€“Niâ€“Mnâ€“Co Pseudoquaternary System. Chemistry of Materials, 2016, 28, 55-66.	3.2	28
52	The Challenge of Paramagnetism in Two-Dimensional 6,7Li Exchange NMR. Applied Magnetic Resonance, 2007, 32, 565-581.	0.6	27
53	⁷Li and ²⁹Si NMR Enabled by High-Density Cellulose-Based Electrodes in the Lithiation Process in Silicon and Silicon Monoxide Anodes. Journal of Physical Chemistry C, 2019, 123, 11362-11368.	1.5	27
54	A Solid-State NMR Study of Hydrogen-Bonding Networks and Ion Dynamics in Benzimidazole Salts. Journal of Physical Chemistry B, 2007, 111, 5602-5609.	1.2	26

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55	Structure and Dynamics in Functionalized Graphene Oxides through Solid-State NMR. Chemistry of Materials, 2016, 28, 360-367.	3.2	25
56	The proton dynamics of imidazole methylphosphonate: an example of cooperative ionic conductivity. Physical Chemistry Chemical Physics, 2010, 12, 263-272.	1.3	24
57	¹H Solid-State NMR Study of Nanothin Nafion Films. Journal of Physical Chemistry C, 2015, 119, 1280-1285.	1.5	24
58	Mapping of Lithium-Ion Battery Electrolyte Transport Properties and Limiting Currents with In Situ MRI. Journal of the Electrochemical Society, 2020, 167, 140518.	1.3	24
59	Electrochemical Changes in Lithium-Battery Electrodes Studied Using 7Li NMR and Enhanced 13C NMR of Graphene and Graphitic Carbons. Chemistry of Materials, 2015, 27, 3299-3305.	3.2	22
60	Reviewâ€"Multifunctional Separators: A Promising Approach for Improving the Durability and Performance of Li-Ion Batteries. Journal of the Electrochemical Society, 2019, 166, A5369-A5377.	1.3	22
61	Studies of lithium ion dynamics in paramagnetic cathode materials using 6Li 1D selective inversion methods. Solid State Nuclear Magnetic Resonance, 2012, 42, 26-32.	1.5	21
62	Structural analysis of lanthanum-containing battery materials using ¹³⁹La solid-state NMR. Canadian Journal of Chemistry, 2011, 89, 1105-1117.	0.6	20
63	Elucidating the Time Scale and Geometry of Phosphate and Phosphonate Rotation in Solid Acid Electrolytes Using Multinuclear NMR. Journal of Physical Chemistry C, 2011, 115, 6064-6072.	1.5	20
64	Solid State NMR Study of Boron Coordination Environments in Silicone Boronate (SiBA) Polymers. Macromolecules, 2019, 52, 1055-1064.	2.2	20
65	Influences of casting solvents on proton dynamics within sulfonated polyether ether ketones (S-PEEKs) studied using high-resolution solid-state NMR. Journal of Membrane Science, 2008, 319, 238-243.	4.1	19
66	Multi-Temperature in Situ Magnetic Resonance Imaging of Polarization and Salt Precipitation in Lithium-Ion Battery Electrolytes. Journal of Physical Chemistry C, 2017, 121, 20704-20713.	1.5	19
67	X-ray Absorption and Solid-State NMR Spectroscopy of Fluorinated Proton Conducting Polymers. Journal of Physical Chemistry C, 2018, 122, 3233-3244.	1.5	18
68	Solid-State 2H NMR Determination of Poly(aniline) Conformation Within a MoO3 Nanocomposite. Advanced Materials, 1998, 10, 449-452.	11.1	17
69	Structure Solution of Metal-Oxide Li Battery Cathodes from Simulated Annealing and Lithium NMR Spectroscopy. Chemistry of Materials, 2017, 29, 5550-5557.	3.2	17
70	Incorporating Dendrite Growth into Continuum Models of Electrolytes: Insights from NMR Measurements and Inverse Modeling. Journal of the Electrochemical Society, 2019, 166, A1591-A1602.	1.3	17
71	Investigations of Proton Conduction in the Monoclinic Phase of RbH₂PO₄ Using Multinuclear Solid-State NMR. Journal of Physical Chemistry C, 2009, 113, 17950-17957.	1.5	16
72	The Effect of Ionic Aggregates on the Transport of Charged Species in Lithium Electrolyte Solutions. Journal of the Electrochemical Society, 2018, 165, H561-H567.	1.3	15

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73	Combining density functional theory and 23Na NMR to characterize Na2FePO4F as a potential sodium ion battery cathode. Solid State Nuclear Magnetic Resonance, 2019, 103, 1-8.	1.5	15
74	Bayesian uncertainty quantification in inverse modeling of electrochemical systems. Journal of Computational Chemistry, 2019, 40, 740-752.	1.5	15
75	Synthesis of Li4V(PO4)2F2 and 6,7Li NMR studies of its lithium ion dynamics. Journal of Materials Chemistry, 2010, 20, 4340.	6.7	14
76	An Improved Understanding of Li⁺ Hopping Pathways and Rates in Li₃Fe₂(PO₄)₃ Using Selective Inversion ⁶Li NMR Spectroscopy. Journal of Physical Chemistry C, 2013, 117, 24181-24188.	1.5	14
77	A parallel-plate RF probe and battery cartridge for 7Li ion battery studies. Journal of Magnetic Resonance, 2021, 325, 106943.	1.2	13
78	Solid-state NMR studies of hydrogen bonding networks and proton transport pathways based on anion and cation dynamics. Magnetic Resonance in Chemistry, 2007, 45, S135-S143.	1.1	12
79	Structural Complexity and Electrical Properties of the Garnet-Type Structure LaLi0.5Fe0.2O2.09Studied by7Li and139La Solid State NMR Spectroscopy and Impedance Spectroscopy. Chemistry of Materials, 2011, 23, 3105-3113.	3.2	12
80	The use of⁶Li{⁷Li}-REDOR NMR spectroscopy to compare the ionic conductivities of solid-state lithium ion electrolytes. Physical Chemistry Chemical Physics, 2014, 16, 2515-2526.	1.3	12
81	Proton dynamics in sulfonated ionic salt composites: Alternative membrane materials for proton exchange membrane fuel cells. Journal of Power Sources, 2014, 268, 853-860.	4.0	12
82	Real-Time Quantitative Detection of Lithium Plating by In Situ NMR Using a Parallel-Plate Resonator. Journal of the Electrochemical Society, 2020, 167, 130514.	1.3	12
83	Evaluation of the Stability of Trimethyl Phosphate as a Liâ€“O2 Battery Electrolyte via Multinuclear Solid-State NMR. Journal of Physical Chemistry C, 2015, 119, 26840-26848.	1.5	11
84	Transient lithium metal plating on graphite: Operando 7Li nuclear magnetic resonance investigation of a battery cell using a novel RF probe. Carbon, 2022, 189, 377-385.	5.4	11
85	Investigations of the Phase Transition and Proton Dynamics in Rubidium Methane Phosphonate Studied by Solid-State NMR. Journal of Physical Chemistry C, 2008, 112, 5221-5231.	1.5	10
86	Differentiating Lithium Ion Hopping Rates in Vanadium Phosphate versus Vanadium Fluorophosphate Structures Using 1D ⁶Li Selective Inversion NMR. Journal of Physical Chemistry C, 2013, 117, 7981-7992.	1.5	10
87	Environmental In Situ X-ray Absorption Spectroscopy Evaluation of Electrode Materials for Rechargeable Lithiumâ€“Oxygen Batteries. Journal of Physical Chemistry C, 2014, 118, 12617-12624.	1.5	10
88	Probing Hydrogen Bonding and Proton Mobility in Dicyanoimidazole Monomers and Polymers. Macromolecules, 2005, 38, 416-421.	2.2	9
89	Probing Proton Mobility in Polyvinazene and its Sulfonated Derivatives Using ¹H Solidâ€State NMR. Macromolecular Chemistry and Physics, 2007, 208, 2076-2084.	1.1	9
90	NMR Determination of the Relative Binding Affinity of Crown Ethers for Manganese Cations in Aprotic Nonaqueous Lithium Electrolyte Solutions. Journal of Physical Chemistry C, 2016, 120, 3677-3683.	1.5	9

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91	Elucidating the Li-Ion Battery Performance Benefits Enabled by Multifunctional Separators. ACS Applied Energy Materials, 2018, 1, 1878-1882.	2.5	9
92	Dynamics of benzimidazole ethylphosphonate: a solid-state NMR study of anhydrous composite proton-conducting electrolytes. Physical Chemistry Chemical Physics, 2013, 15, 17983.	1.3	8
93	¹Hâ€“¹H Double Quantum NMR Investigation of Proton Dynamics in Solid Acids. Journal of Physical Chemistry C, 2016, 120, 19961-19969.	1.5	8
94	Quantifying Site-Specific Proton Dynamics in Phosphate Solid Acids by ¹H Double Quantum NMR Spectroscopy. Journal of Physical Chemistry C, 2017, 121, 25641-25650.	1.5	8
95	Synthesis of Siliconized Photosensitizers for Use in 1O2-Generating Silicone Elastomers: An Electron Paramagnetic Resonance Study. Macromolecules, 2021, 54, 4333-4341.	2.2	8
96	Concentration Dependent Solution Structure and Transport Mechanism in High Voltage LiTFSIâ€“Adiponitrile Electrolytes. Journal of the Electrochemical Society, 2020, 167, 160532.	1.3	8
97	Solidâ€state NMR studies of chemical exchange in ion conductors for alternative energy applications. Concepts in Magnetic Resonance Part A: Bridging Education and Research, 2016, 45A, .	0.2	7
98	19F Double Quantum NMR Spectroscopy: A Tool for Probing Dynamics in Proton-Conducting Fluorinated Polymer Materials. Macromolecules, 2016, 49, 7331-7339.	2.2	7
99	Original Layered OP4-(Li,Na)_xCoO₂ Phase: Insights on Its Structure, Electronic Structure, and Dynamics from Solid State NMR. Inorganic Chemistry, 2020, 59, 5339-5349.	1.9	7
100	Adaptive Smooth Variable Structure Filter Strategy for State Estimation of Electric Vehicle Batteries. Energies, 2021, 14, 8560.	1.6	7
101	6,7Li NMR study of ion mobility on the molecular scale in lithated imidazole complexes. Solid State Ionics, 2006, 177, 1405-1411.	1.3	6
102	Discerning models of phase transformations in porous graphite electrodes: Insights from inverse modelling based on MRI measurements. Electrochimica Acta, 2020, 349, 136290.	2.6	6
103	Optimization of a parallelâ€plate <scp>RF</scp> probe for high resolution thin film imaging. Concepts in Magnetic Resonance Part A: Bridging Education and Research, 2018, 47A, .	0.2	5
104	Site-Specific Proton Dynamics in Indium-Doped Tin Pyrophosphate. Journal of Physical Chemistry C, 2020, 124, 28407-28416.	1.5	5
105	Editorial. Solid State Nuclear Magnetic Resonance, 2012, 42, 1.	1.5	4
106	Correlation of Electrochemical Performance with Lithium Environments and Cation Dynamics in Li₂(Mn_{1â€“y}Fe_y)P₂O₇ using ⁶Li Solid-State NMR. Journal of Physical Chemistry C, 2015, 119, 16468-16474.	1.5	4
107	Ab initio structure determination of SrBi2OB4O9 by powder X-ray/neutron diffraction and NMR spectroscopy. Powder Diffraction, 2009, 24, 35-40.	0.4	3
108	Exact calculation of the response of a quadrupolar nucleus to radio frequency irradiation. Canadian Journal of Chemistry, 2011, 89, 764-769.	0.6	3

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109	Dynamics of Ag⁺ Ions in RbAg₄I₅ Probed Indirectly via ⁸⁷Rb Solid-State NMR. Journal of Physical Chemistry C, 2013, 117, 9558-9565.	1.5	3
110	Complete description of the interactions of a quadrupolar nucleus with a radiofrequency field. Implications for data fitting. Solid State Nuclear Magnetic Resonance, 2013, 53, 20-26.	1.5	3
111	Identification of electrochemical reaction products in lithiumâ€“oxygen cells with ⁷Li nutation spectroscopy. Canadian Journal of Chemistry, 2015, 93, 976-982.	0.6	3
112	A magnetic resonance and electrochemical study of the role of polymer mobility in supporting hydrogen transport in perfluorosulfonic acid membranes. Physical Chemistry Chemical Physics, 2018, 20, 19098-19109.	1.3	3
113	Measurement and calculation of ¹³C and ¹⁵N NMR chemical-shift tensors of a pushâ€“pull ethylene. Canadian Journal of Chemistry, 2009, 87, 563-570.	0.6	2
114	The JPC Periodic Table. Journal of Physical Chemistry A, 2019, 123, 5837-5848.	1.1	2
115	The JPC Periodic Table. Journal of Physical Chemistry Letters, 2019, 10, 4051-4062.	2.1	2
116	Structure and Electronic Structure Evolution of P2-Na_xCoO₂ Phases from X-ray Diffraction and ²³Na Magic Angle Spinning Nuclear Magnetic Resonance. Chemistry of Materials, 2022, 34, 6431-6439.	3.2	2
117	The JPC Periodic Table. Journal of Physical Chemistry B, 2019, 123, 5973-5984.	1.2	1
118	The JPC Periodic Table. Journal of Physical Chemistry C, 2019, 123, 17063-17074.	1.5	1
119	A tribute to Alexander Davidson Bain: An NMR pioneer and mentor at McMaster University. Concepts in Magnetic Resonance Part A: Bridging Education and Research, 2016, 45A, e21418.	0.2	0