Ian Farnan

List of Publications by Year in descending order

118 papers	4,766 citations	81839 39 h-index	102432 66 g-index
120 all docs	120 docs citations	120 times ranked	3715 citing authors

#	Article	IF	Citations
1	71Ga and 69Ga nuclear magnetic resonance study of Î²-Ga2O3: resolution of four- and six-fold coordinated Ga sites in static conditions. Solid State Nuclear Magnetic Resonance, 1995, 4, 241-248.	1.5	306
2	Quantification of the disorder in network-modified silicate glasses. Nature, 1992, 358, 31-35.	13.7	255
3	The Nature of the Glass Transition in a Silica-Rich Oxide Melt. Science, 1994, 265, 1206-1209.	6.0	177
4	Metamictization of zircon: Raman spectroscopic study. Journal of Physics Condensed Matter, 2000, 12, 1915-1925.	0.7	163
5	XPS study of ion irradiated and unirradiated CeO2 bulk and thin film samples. Applied Surface Science, 2018, 448, 154-162.	3.1	153
6	Quantification of actinide Î±-radiation damage in minerals and ceramics. Nature, 2007, 445, 190-193.	13.7	150
7	NMR determinations of Si O Si bond angle distributions in silica. Journal of Non-Crystalline Solids, 1988, 106, 408-412.	1.5	141
8	High-temperature silicon-29 NMR investigation of solid and molten silicates. Journal of the American Chemical Society, 1990, 112, 32-39.	6.6	138
9	The structure and dynamics of alkali silicate liquids: A view from NMR spectroscopy. Chemical Geology, 1992, 96, 371-385.	1.4	123
10	A study of the structural role of water in hydrous silica glass using cross-polarisation magic angle spinning NMR. Geochimica Et Cosmochimica Acta, 1987, 51, 2869-2873.	1.6	116
11	Pressure-induced bond-angle variation in amorphousSiO2. Physical Review B, 1987, 35, 2560-2562.	1.1	116
12	Empirical Correlations between207Pb NMR Chemical Shifts and Structure in Solids. Journal of the American Chemical Society, 1997, 119, 6837-6843.	6.6	115
13	Experimental constraints on Li isotope fractionation during clay formation. Geochimica Et Cosmochimica Acta, 2019, 250, 219-237.	1.6	113
14	The degree and nature of radiation damage in zircon observed by 29Si nuclear magnetic resonance. Journal of Applied Physics, 2001, 89, 2084-2090.	1.1	112
15	Dynamics of the ?-? phase transitions in quartz and cristobalite as observed by in-situ high temperature 29Si and 17O NMR. Physics and Chemistry of Minerals, 1992, 19, 307.	0.3	111
16	Cation Distribution in Mixed Alkali Disilicate Glasses. Journal of the American Chemical Society, 1996, 118, 3493-3497.	6.6	106
17	Silicon site distributions in an alkali silicate glass derived by two-dimensional 29Si nuclear magnetic resonance. Journal of Non-Crystalline Solids, 1996, 204, 294-300.	1.5	102
18	Effects of High Temperature on Silicate Liquid Structure: A Multinuclear NMR Study. Science, 1992, 255, 586-589.	6.0	100

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19	Nuclear Magnetic Resonance Spectroscopy in the Earth Sciences: Structure and Dynamics. Science, 1989, 245, 257-263.	6.0	89
20	29Si and 17O (Q)CPMG-MAS solid-state NMR experiments as an optimum approach for half-integer nuclei having long T1 relaxation times. Chemical Physics Letters, 2002, 357, 403-408.	1.2	85
21	Structure and Dynamics of CaAl2O4 from Liquid to Glass: A High-Temperature 27Al NMR Time-Resolved Study. The Journal of Physical Chemistry, 1995, 99, 16455-16459.	2.9	70
22	First-principles calculations of solid-state17O and29Si NMR spectra of Mg2SiO4polymorphs. Physical Chemistry Chemical Physics, 2007, 9, 1587-1598.	1.3	65
23	A time resolved 27Al NMR study of the cooling process of liquid alumina from 2450 Â°C to crystallisation. Solid State Nuclear Magnetic Resonance, 1995, 5, 233-238.	1.5	62
24	First-Principles Calculation of17O and25Mg NMR Shieldings in MgO at Finite Temperature: Rovibrational Effect in Solids. Journal of Physical Chemistry B, 2005, 109, 7245-7250.	1.2	62
25	The effect of radiation damage on local structure in the crystalline fraction of ZrSiO₄: Investigating the²⁹Si NMR response to pressure in zircon and reidite. American Mineralogist, 2003, 88, 1663-1667.	0.9	61
26	Observation of slow atomic motions close to the glass transition using 2-D 29Si NMR. Journal of Non-Crystalline Solids, 1990, 124, 207-215.	1.5	57
27	Silicate species exchange, viscosity, and crystallization in a low-silica melt; in situ high-temperature MAS NMR spectroscopy. American Mineralogist, 1995, 80, 861-864.	0.9	55
28	Candidate waste forms for immobilisation of waste chloride salt from pyroprocessing of spent nuclear fuel. Journal of Nuclear Materials, 2012, 420, 396-404.	1.3	54
29	An upper bound for the density of states at the yttrium site in YBa2Cu3O7-Î´. Journal of Physics C: Solid State Physics, 1988, 21, L847-L852.	1.5	51
30	Measurement of molecular motion in solids by nuclear magnetic resonance spectroscopy of half-integer quadrupole nuclei. Journal of Chemical Physics, 2001, 114, 9608-9624.	1.2	49
31	Structural Transformations and Anomalous Viscosity in the<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msub><mml:mi mathvariant="bold">B</mml:mi><mml:mn>2</mml:mn></mml:msub><mml:msub><mml:mi mathvariant="bold">O</mml:mi><mml:mn>3</mml:mn></mml:msub></mml:math>Melt under High Pressure. Physical Review Letters, 2010, 105, 115701.	2.9	48
32	Diffusion and the dynamics of displacive phase transitions in cryolite (Na3AlF6) and chiolite (Na5Al3F14): Multi-nuclear NMR studies. Physics and Chemistry of Minerals, 1994, 21, 373.	0.3	47
33	89Y Magic-Angle Spinning NMR of Y2Ti2-xSnxO7Pyrochlores. Journal of Physical Chemistry B, 2006, 110, 10358-10364.	1.2	47
34	XPS Study of Ion Irradiated and Unirradiated UO₂ Thin Films. Inorganic Chemistry, 2016, 55, 8059-8070.	1.9	46
35	Solids and Liquids in the NaF-AlF3-Al2O3 System: A High-Temperature NMR Study. Journal of the American Ceramic Society, 1992, 75, 3001-3006.	1.9	45
36	The electronic structure and the nature of the chemical bond in CeO₂. Physical Chemistry Chemical Physics, 2018, 20, 16167-16175.	1.3	45

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37	Structural information about amorphous anodic alumina from²⁷Al MAS NMR. Philosophical Magazine Letters, 1989, 59, 189-195.	0.5	43
38	Structural chemistry of anodic alumina. Thin Solid Films, 1989, 173, 209-215.	0.8	41
39	Bonding and dynamical phenomena in MgO: A high temperature 17O and 25Mg NMR study. Physics and Chemistry of Minerals, 1994, 20, 587-593.	0.3	41
40	Magic angle spinning NMR observation of sodium site exchange in nepheline at 500Â° C. Physics and Chemistry of Minerals, 1989, 16, 763-766.	0.3	38
41	Alpha-decay damage and recrystallization in zircon: evidence for an intermediate state from infrared spectroscopy. Journal of Physics Condensed Matter, 2000, 12, 5189-5199.	0.7	37
42	High-Resolution Solid-State Oxygen-17 NMR of Actinide-Bearing Compounds: An Insight into the 5f Chemistry. Inorganic Chemistry, 2014, 53, 6928-6933.	1.9	36
43	XPS study of the surface chemistry of UO 2 (111) single crystal film. Applied Surface Science, 2018, 433, 582-588.	3.1	35
44	Lack of local structural orientation in oxide glasses quenched during flow: NMR results. Journal of Non-Crystalline Solids, 1989, 110, 1-12.	1.5	34
45	Aluminum in Rutile [TiO2]: Characterization by Single-Crystal and Magic-Angle-Spinning Nuclear Magnetic Resonance. Journal of the American Ceramic Society, 1989, 72, 2198-2200.	1.9	31
46	Solid-state 17O nuclear magnetic resonance spectroscopy without isotopic enrichment: direct detection of bridging oxygen in radiation damaged zircon. Solid State Nuclear Magnetic Resonance, 2004, 26, 105-112.	1.5	29
47	Thermal phase transformations in LaGaO3 and LaAlO3 perovskites: An experimental and computational solid-state NMR study. Solid State Nuclear Magnetic Resonance, 2012, 42, 87-97.	1.5	29
48	The aperiodic states of zircon: an ab initio molecular dynamics study. American Mineralogist, 2003, 88, 1769-1777.	0.9	28
49	A ²³Na Magic Angle Spinning Nuclear Magnetic Resonance, XANES, and High-Temperature X-ray Diffraction Study of NaUO₃, Na₄UO₅, and Na₂U₂O₇. Inorganic Chemistry, 2014, 53, 375-382.	1.9	28
50	On the stoichiometry of zirconium carbide. Scientific Reports, 2020, 10, 6347.	1.6	28
51	Predicting radioactive waste glass dissolution with machine learning. Journal of Non-Crystalline Solids, 2020, 533, 119852.	1.5	24
52	Mobility and Relaxation Determinations of Lithium in Lithium Aluminate Ceramics Using Solid-State NMR Spectroscopy. Chemistry of Materials, 1995, 7, 363-367.	3.2	23
53	Micro-Raman and micro-infrared spectroscopic studies of Pb- and Au-irradiated<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:mi mathvariant="normal">Zr</mml:mi><mml:mi mathvariant="normal">Si</mml:mi><mml:msub><mml:mi mathvariant="normal">O</mml:mi><mml:mn>4</mml:mn></mml:msub></mml:mrow></mml:math>: Optical properties, structural damage, and amorphization. Physical Review B, 2008, 77, .	1.1	23
54	High-resolution solid-state nuclear magnetic resonance experiments on highly radioactive ceramics. Review of Scientific Instruments, 2004, 75, 5232-5236.	0.6	22

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55	Separation of 47Ti and 49Ti solid-state NMR lineshapes by static QCPMG experiments at multiple fields. Journal of Magnetic Resonance, 2006, 178, 228-236.	1.2	22
56	²⁹Si NMR characterisation of the crystalline-amorphous transition in ZrSiO₄. Phase Transitions, 1999, 69, 47-60.	0.6	21
57	Disorder and Dynamics in Pollucite from 133Cs and 27Al NMR. Journal of the American Ceramic Society, 2005, 88, 1575-1583.	1.9	20
58	Silicon carbide polytype characterisation in coated fuel particles by Raman spectroscopy and 29Si magic angle spinning NMR. Journal of Nuclear Materials, 2013, 433, 199-205.	1.3	20
59	A nuclear magnetic resonance spectrometer concept for hermetically sealed magic angle spinning investigations on highly toxic, radiotoxic, or air sensitive materials. Review of Scientific Instruments, 2013, 84, 055112.	0.6	20
60	Disordering and the progress of hydration at the surface of diopside: A cross-polarisation MAS-NMR study. Geochimica Et Cosmochimica Acta, 1988, 52, 3017-3021.	1.6	19
61	Impacts of composition and beta irradiation on phase separation in multiphase amorphous calcium borosilicates. Journal of Non-Crystalline Solids, 2017, 473, 1-16.	1.5	19
62	Î²-Irradiation Effects on the Formation and Stability of CaMoO₄ in a Soda Lime Borosilicate Glass Ceramic for Nuclear Waste Storage. Inorganic Chemistry, 2017, 56, 1558-1573.	1.9	18
63	The effect of fission-energy Xe ion irradiation on the structural integrity and dissolution of the CeO 2 matrix. Journal of Nuclear Materials, 2017, 484, 332-338.	1.3	18
64	The effect of magnesium on the local structure and initial dissolution rate of simplified UK Magnox waste glasses. Journal of Non-Crystalline Solids, 2018, 497, 82-92.	1.5	18
65	Oxygen bridges in molten glass. Nature, 1997, 390, 14-15.	13.7	17
66	A classroom experiment to demonstrate ferroelectric hysteresis. American Journal of Physics, 2003, 71, 819-822.	0.3	17
67	Leaching behaviour of and Cs disposition in a UMo powellite glassâ€“ceramic. Journal of Nuclear Materials, 2014, 448, 325-329.	1.3	16
68	Anisotropic relaxation and motion of half-integer quadrupole nuclei studied by central transition nuclear magnetic resonance spectroscopy. Journal of Magnetic Resonance, 2002, 158, 99-125.	1.2	15
69	Order and Disorder in Titanosilicate Glass by17O MAS, off-MAS, and 3Q-QCPMG-MAS Solid-State NMR. Journal of Physical Chemistry B, 2007, 111, 8014-8019.	1.2	13
70	Coupling XRD, EXAFS, and ¹³C NMR to Study the Effect of the Carbon Stoichiometry on the Local Structure of UC_{1Â±x}. Inorganic Chemistry, 2013, 52, 11669-11676.	1.9	12
71	Structural effects in UO2 thin films irradiated with U ions. Nuclear Instruments & Methods in Physics Research B, 2016, 386, 8-15.	0.6	12
72	The effect of ion irradiation on the dissolution of UO2 and UO2-based simulant fuel. Journal of Alloys and Compounds, 2018, 735, 1350-1356.	2.8	12

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73	Structure and dynamics in glassy and molten silicates. Current Opinion in Solid State and Materials Science, 1998, 3, 371-377.	5.6	11
74	Structural effects in UO 2 thin films irradiated with fission-energy Xe ions. Journal of Nuclear Materials, 2016, 482, 210-217.	1.3	11
75	An investigation of the long-range and local structure of sub-stoichiometric zirconium carbide sintered at different temperatures. Scientific Reports, 2020, 10, 3096.	1.6	11
76	Site Populations and Short Range Order in Aluminosilicates Investigated by 27Al Solid-State NMR. Journal of Physical Chemistry B, 2004, 108, 9764-9771.	1.2	10
77	Calculation of the effect of intrinsic point defects and volume swelling in the nuclear magnetic resonance spectra of ZrSiO4. Molecular Simulation, 2005, 31, 349-354.	0.9	10
78	The effect of fission-energy Xe ion irradiation on dissolution of UO2 thin films. Journal of Alloys and Compounds, 2017, 721, 586-592.	2.8	10
79	Impacts of lithium on Magnox waste glass dissolution. Journal of Non-Crystalline Solids, 2019, 517, 96-105.	1.5	10
80	Understanding the relationship between dopant and ionic transport in yttria-doped ceria-zirconia. Journal of Materials Chemistry, 2011, 21, 9570.	6.7	9
81	Investigation of the maximum dissolution rates and temperature dependence of a simulated UK nuclear waste glass in circum-neutral media at 40 and 90Â°C in a dynamic system. Applied Geochemistry, 2017, 82, 177-190.	1.4	9
82	Discovery of a maximum damage structure for Xe-irradiated borosilicate glass ceramics containing powellite. Journal of Nuclear Materials, 2018, 510, 229-242.	1.3	9
83	Evaluating the temperature dependence of Magnox waste glass dissolution. Journal of Non-Crystalline Solids, 2019, 518, 75-84.	1.5	9
84	Surface alteration evidence for a mechanism of anoxic dissolution of UO2. Applied Surface Science, 2019, 464, 376-379.	3.1	9
85	Structure of UC2 and U2C3:XRD, 13C NMR and EXAFS study. Journal of Alloys and Compounds, 2014, 589, 234-239.	2.8	8
86	Assessing static glass leaching predictions from large datasets using machine learning. Journal of Non-Crystalline Solids, 2020, 546, 120276.	1.5	8
87	An Atomic-Scale Understanding of UO₂ Surface Evolution during Anoxic Dissolution. ACS Applied Materials & Interfaces, 2020, 12, 39781-39786.	4.0	8
88	Quantification of Â-particle radiation damage in zircon. American Mineralogist, 2014, 99, 2095-2104.	0.9	7
89	Mechanism of powellite crystallite expansion within nano-phase separated amorphous matrices under Au-irradiation. Physical Chemistry Chemical Physics, 2020, 22, 15616-15631.	1.3	7
90	The effect of caesium on barium hollandites studied by neutron diffraction and magic-angle spinning (MAS) nuclear magnetic resonance. Journal of Materials Science, 2007, 42, 9379-9391.	1.7	6

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91	Method for making minor dopant additions to porous ceramics. Advances in Applied Ceramics, 2009, 108, 506-508.	0.6	6
92	Multi-nuclear NMR study of polytype and defect distribution in neutron irradiated silicon carbide. Journal of Nuclear Materials, 2014, 444, 92-100.	1.3	6
93	Relating Magnox and international waste glasses. Journal of Non-Crystalline Solids, 2019, 524, 119647.	1.5	6
94	Surface and electrochemical controls on UO2 dissolution under anoxic conditions. Journal of Nuclear Materials, 2019, 520, 41-55.	1.3	6
95	Pb+ irradiation of synthetic zircon (ZrSiO4): Infrared spectroscopic investigation–Reply. American Mineralogist, 2009, 94, 856-858.	0.9	5
96	Î”The effect of co-doping on the yttrium local environment and ionic conductivity of yttria-stabilised zirconia. Ionics, 2009, 15, 183-190.	1.2	5
97	Positron annihilation lifetime study of radiation-damaged natural zircons. Journal of Nuclear Materials, 2016, 471, 44-50.	1.3	5
98	Swift heavy ion-irradiated multi-phase calcium borosilicates: implications to molybdenum incorporation, microstructure, and network topology. Journal of Materials Science, 2019, 54, 11763-11783.	1.7	5
99	Applications of NMR in nuclear chemistry. Nuclear Magnetic Resonance, 2016, , 96-141.	0.1	5
100	Computational aspects of motional symmetry in nuclear magnetic resonance spectroscopy. Chemical Physics, 2001, 270, 109-128.	0.9	4
101	Efficient solid state NMR powder simulations using SMP and MPP parallel computation. Journal of Magnetic Resonance, 2003, 161, 183-190.	1.2	4
102	The management of separated plutonium: An introduction. Progress in Nuclear Energy, 2007, 49, 568-573.	1.3	4
103	The nature of the chemical bond in UO 2. International Journal of Quantum Chemistry, 2019, 119, e26040.	1.0	4
104	Coupling Radioactive Waste Glass Dissolution Measurements in Generic Groundwaters With Reactive Transport Modeling of Repository Scenarios. Water Resources Research, 2019, 55, 8010-8027.	1.7	3
105	Diffusive processes in aqueous glass dissolution. Npj Materials Degradation, 2019, 3, .	2.6	3
106	Deoxygenation and oxygen annealing of Bi2Sr2CaCu2O8+Î´ single observed in situ by 17O NMR. Physica C: Superconductivity and Its Applications, 1994, 232, 27-36.	0.6	2
107	Structure and dynamics of silicate glasses and melts. Mineralogical Magazine, 2000, 64, 373-376.	0.6	2
108	Identifying and Quantifying Actinide Radiation Damage in Ceramics with Radiological Magic-Angle Spinning Nuclear Magnetic Resonance. Materials Research Society Symposia Proceedings, 2006, 986, 1.	0.1	2

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109	Corrosion Behavior of AGR Simulated Fuels - Evolution of the Fuel Surface. ECS Transactions, 2013, 53, 95-104.	0.3	2
110	Time Resolved Very High Temperature NMR Study of the Cooling Process of CaO-Al2O3 Liquids. , 1998, , 107-116.		2
111	Properties of Zirconium Carbide for Nuclear Fuel Applications. , 2020, , 419-456.		2
112	Isotropic and anisotropic chemical shift in 207Pb NMR of inorganic solids. Journal De Chimie Physique Et De Physico-Chimie Biologique, 1998, 95, 317-321.	0.2	2
113	High temperature 35Cl nuclear magnetic resonance study of the LiClâ€“KCl system and the effect of CeCl3 dissolution. Faraday Discussions, 2016, 190, 367-385.	1.6	1
114	Characterization of immiscibility in calcium borosilicates used for the immobilization of Mo 6+ under Auâ€irradiation. Journal of the American Ceramic Society, 2021, 104, 3632-3651.	1.9	1
115	Temperature dependent lithium isotope fractionation during glass dissolution. Geochimica Et Cosmochimica Acta, 2021, 313, 133-154.	1.6	1
116	Assessing the effect of radioactive waste glass dissolution on early-stage radionuclide migration using simplified geological repository Monte Carlo transport models. MRS Advances, 2021, 6, 73-79.	0.5	1
117	Developments for nuclear reactors and spent fuels processing: general discussion. Faraday Discussions, 2016, 190, 399-419.	1.6	0
118	Advancement in knowledge of phenomena and processes: general discussion. Faraday Discussions, 2016, 190, 525-549.	1.6	0