Joseph V Ryan

List of Publications by Year
in descending order

70 papers	2,578 citations	257357 24 h-index	197736 49 g-index
73 all docs	73 docs citations	73 times ranked	2024 citing authors

#	Article	IF	Citations
1	An international initiative on long-term behavior of high-level nuclear waste glass. Materials Today, 2013, 16, 243-248.	8.3	417
2	Current Understanding and Remaining Challenges in Modeling Longâ€Term Degradation of Borosilicate Nuclear Waste Glasses. International Journal of Applied Glass Science, 2013, 4, 283-294.	1.0	208
3	The fate of silicon during glass corrosion under alkaline conditions: A mechanistic and kinetic study with the International Simple Glass. Geochimica Et Cosmochimica Acta, 2015, 151, 68-85.	1.6	165
4	Electronic connection to the interior of a mesoporous insulator with nanowires of crystalline RuO2. Nature, 2000, 406, 169-172.	13.7	150
5	A comparative review of the aqueous corrosion of glasses, crystalline ceramics, and metals. Npj Materials Degradation, 2018, 2, .	2.6	150
6	Contribution of atom-probe tomography to a better understanding of glass alteration mechanisms: Application to a nuclear glass specimen altered 25years in a granitic environment. Chemical Geology, 2013, 349-350, 99-109.	1.4	105
7	Chalcogen-based aerogels as a multifunctional platform for remediation of radioactive iodine. RSC Advances, 2011, 1, 1704.	1.7	85
8	Cold crucible induction melter studies for making glass ceramic waste forms: A feasibility assessment. Journal of Nuclear Materials, 2014, 444, 481-492.	1.3	82
9	Planar chalcogenide glass waveguides for IR evanescent wave sensors. Journal of Non-Crystalline Solids, 2006, 352, 584-588.	1.5	78
10	A method for site-specific and cryogenic specimen fabrication of liquid/solid interfaces for atom probe tomography. Ultramicroscopy, 2018, 194, 89-99.	0.8	64
11	Self-accelerated corrosion of nuclear waste forms at material interfaces. Nature Materials, 2020, 19, 310-316.	13.3	61
12	Predicting the dissolution kinetics of silicate glasses by topology-informed machine learning. Npj Materials Degradation, 2019, 3, .	2.6	59
13	Recent Advances in Corrosion Science Applicable To Disposal of High-Level Nuclear Waste. Chemical Reviews, 2021, 121, 12327-12383.	23.0	52
14	The dissolution behavior of borosilicate glasses in far-from equilibrium conditions. Geochimica Et Cosmochimica Acta, 2018, 226, 132-148.	1.6	47
15	Impacts of glass composition, pH, and temperature on glass forward dissolution rate. Npj Materials Degradation, 2018, 2, .	2.6	46
16	Synthesis and characterization of inorganic silicon oxycarbide glass thin films by reactive rf-magnetron sputtering. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 2007, 25, 153-159.	0.9	41
17	Physical and optical properties of the International Simple Glass. Npj Materials Degradation, 2019, 3, .	2.6	37
18	Ion-Exchange Interdiffusion Model with Potential Application to Long-Term Nuclear Waste Glass Performance. Journal of Physical Chemistry C, 2016, 120, 9374-9384.	1.5	30

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19	Tomographic mapping of the nanoscale water-filled pore structure in corroded borosilicate glass. Npj Materials Degradation, 2020, 4, .	2.6	29
20	Effects of Al:Si and (AlÂ+ÂNa):Si ratios on the properties of the international simple glass, part II: Structure. Journal of the American Ceramic Society, 2021, 104, 183-207.	1.9	29
21	Spectral behavior of the optical constants in the visibleâˆ•near infrared of GeSbSe chalcogenide thin films grown at glancing angle. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 2007, 25, 587-591.	0.9	26
22	Monte Carlo simulations of the corrosion of aluminoborosilicate glasses. Journal of Non-Crystalline Solids, 2013, 378, 273-281.	1.5	26
23	The initial dissolution rates of simulated UK Magnoxâ€“ThORP blend nuclear waste glass as a function of pH, temperature and waste loading. Mineralogical Magazine, 2015, 79, 1529-1542.	0.6	25
24	Atomistic origin of the passivation effect in hydrated silicate glasses. Npj Materials Degradation, 2019, 3, .	2.6	25
25	Argon Cluster Sputtering Source for ToF-SIMS Depth Profiling of Insulating Materials: High Sputter Rate and Accurate Interfacial Information. Journal of the American Society for Mass Spectrometry, 2015, 26, 1283-1290.	1.2	24
26	Non-destructive characterization of corroded glass surfaces by spectroscopic ellipsometry. Journal of Non-Crystalline Solids, 2018, 481, 260-266.	1.5	21
27	Investigating the Durability of Iodine Waste Forms in Dilute Conditions. Materials, 2019, 12, 686.	1.3	21
28	Frequency dependent electrical measurements of amorphous GeSbSe chalcogenide thin films. Applied Physics Letters, 2010, 96, .	1.5	20
29	Effect of vanadium oxide addition on thermomechanical behaviors of borosilicate glasses: Toward development of high crack resistant glasses for nuclear waste disposal. Journal of Non-Crystalline Solids, 2019, 515, 88-97.	1.5	20
30	Surface microstructure of GeSbSe chalcogenide thin films grown at oblique angle. Journal of Applied Physics, 2007, 101, 083513.	1.1	19
31	Low-temperature lithium diffusion in simulated high-level boroaluminosilicate nuclear waste glasses. Journal of Non-Crystalline Solids, 2014, 405, 83-90.	1.5	18
32	Monte Carlo simulations of coupled diffusion and surface reactions during the aqueous corrosion of borosilicate glasses. Journal of Non-Crystalline Solids, 2015, 408, 142-149.	1.5	18
33	Effects of optical dopants and laser wavelength on atom probe tomography analyses of borosilicate glasses. Journal of the American Ceramic Society, 2017, 100, 4801-4815.	1.9	18
34	The use of positrons to survey alteration layers on synthetic nuclear waste glasses. Journal of Nuclear Materials, 2017, 490, 75-84.	1.3	17
35	Multi-glass investigation of Stage III glass dissolution behavior from 22 to 90â€¯Â°C triggered by the addition of zeolite phases. Journal of Nuclear Materials, 2019, 523, 490-501.	1.3	16
36	Acceleration of glass alteration rates induced by zeolite seeds at controlled pH. Applied Geochemistry, 2020, 113, 104515.	1.4	16

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37	Influence of low concentration V and Co oxide doping on the dissolution behaviors of simplified nuclear waste glasses. Journal of Non-Crystalline Solids, 2016, 452, 161-168.	1.5	15
38	Near-field corrosion interactions between glass and corrosion resistant alloys. Npj Materials Degradation, 2020, 4, .	2.6	15
39	Effects of Al:Si and (AlÂ+ÂNa):Si ratios on the properties of the international simple glass, part I: Physical properties. Journal of the American Ceramic Society, 2021, 104, 167-182.	1.9	15
40	Chemical composition of calcium-silicate-hydrate gels: Competition between kinetics and thermodynamics. Physical Review Materials, 2019, 3, .	0.9	15
41	Characterization of sculptured thin films. , 2004, , .		14
42	Nanoscale imaging of Li and B in nuclear waste glass, a comparison of ToF-SIMS, NanoSIMS, and APT. Surface and Interface Analysis, 2016, 48, 1392-1401.	0.8	14
43	zeo19: A thermodynamic database for assessing zeolite stability during the corrosion of nuclear waste immobilization glasses. Npj Materials Degradation, 2020, 4, .	2.6	14
44	Characterization of multi-phase aerogels by contrast-matching SANS. Journal of Non-Crystalline Solids, 1998, 225, 234-238.	1.5	11
45	Tribologyâ€"Structure Relationships in Silicon Oxycarbide Thin Films. International Journal of Applied Ceramic Technology, 2010, 7, 675-686.	1.1	11
46	Adaptation of the GRAAL model of Glass Reactivity to accommodate non-linear diffusivity. Journal of Nuclear Materials, 2018, 512, 79-93.	1.3	11
47	Solâ€"Gel Synthesis and Characterization of Gels with Compositions Relevant to Hydrated Glass Alteration Layers. ACS Omega, 2019, 4, 16257-16269.	1.6	11
48	Magnetotransport properties of high quality Co:ZnO and Mn:ZnO single crystal pulsed laser deposition films: Pitfalls associated with magnetotransport on high resistivity materials. Review of Scientific Instruments, 2010, 81, 063902.	0.6	10
49	In-situ monitoring of seeded and unseeded stage III corrosion using Raman spectroscopy. Npj Materials Degradation, 2019, 3, .	2.6	10
50	Effects of Al:Si and (Al+Na):Si ratios on the static corrosion of sodiumâ€boroaluminosilicate glasses. International Journal of Applied Glass Science, 2022, 13, 94-111.	1.0	10
51	Medium-range order in silicon oxycarbide glass by fluctuation electron microscopy. Journal of Physics Condensed Matter, 2007, 19, 455205.	0.7	9
52	Seeded Stage III glass dissolution behavior of a statistically designed glass matrix. Journal of the American Ceramic Society, 2021, 104, 4145-4162.	1.9	9
53	Solid-state NMR examination of alteration layers on nuclear waste glasses. Journal of Non-Crystalline Solids, 2013, 369, 44-54.	1.5	8
54	Method for the in situ Measurement of pH and Alteration Extent for Aluminoborosilicate Glasses Using Raman Spectroscopy. Analytical Chemistry, 2018, 90, 11812-11819.	3.2	8

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55	Vanadium Oxidation States and Structural Role in Aluminoborosilicate Glasses: An Integrated Experimental and Molecular Dynamics Simulation Study. Journal of Physical Chemistry B, 2021, 125, 12365-12377.	1.2	8
56	Glass Corrosion in the Presence of Iron-Bearing Materials and Potential Corrosion Suppressors. Materials Research Society Symposia Proceedings, 2015, 1744, 139-144.	0.1	7
57	Reply to: How much does corrosion of nuclear waste matrices matter. Nature Materials, 2020, 19, 962-963.	13.3	7
58	Nanoscale microstructure and chemistry of transparent gahnite glass-ceramics revealed by atom probe tomography. Scripta Materialia, 2021, 203, 114110.	2.6	7
59	The effect of concentration on the structure and crystallinity of a cementitious waste form for caustic wastes. Journal of Nuclear Materials, 2013, 437, 332-340.	1.3	6
60	Characterization and modeling of the cemented sediment surrounding the Iulia Felix glass. Applied Geochemistry, 2014, 41, 107-114.	1.4	6
61	NanoSIMS imaging alteration layers of a leached SON68 glass via a FIB-made wedged crater. Surface and Interface Analysis, 2014, 46, 233-237.	0.8	6
62	Simplifying a solution to a complex puzzle. Npj Materials Degradation, 2018, 2, .	2.6	6
63	Rutherford backscattering spectrometry characterization of nanoporous chalcogenide thin films grown at oblique angles. Journal of Analytical Atomic Spectrometry, 2008, 23, 981.	1.6	5
64	Nanoscale imaging of alteration layers of corroded international simple glass particles using ToF-SIMS. Nuclear Instruments & Methods in Physics Research B, 2017, 404, 45-51.	0.6	5
65	Comparative structural investigations of nuclear waste glass alteration layers and sol-gel synthesized aerogels. Npj Materials Degradation, 2020, 4, .	2.6	5
66	On the dissolution of a borosilicate glass with the use of isotopic tracing â€“ Insights into the mechanism for the long-term dissolution rate. Geochimica Et Cosmochimica Acta, 2022, 318, 213-229.	1.6	4
67	DC Ionization Conductivity of Amorphous Semiconductors for Radiation Detection Applications. IEEE Transactions on Nuclear Science, 2009, 56, 863-868.	1.2	3
68	Predicting zeolitesâ€™ stability during the corrosion of nuclear waste immobilization glasses: Comparison with glass corrosion experiments. Journal of Nuclear Materials, 2021, 547, 152813.	1.3	3
69	Fabrication of chalcogenide glass waveguide for IR evanescent wave sensors. , 2004, 5593, 637.		2
70	Development of Glass Compositions to Immobilize Alkali, Alkaline Earth, Lanthanide and Transition Metal Fission Products from Nuclear Fuel Reprocessing. Ceramic Transactions, 0, , 1-10.	0.1	0