Randall E Youngman

List of Publications by Year
in descending order

114 papers	3,919 citations	109264 35 h-index	143943 57 g-index
115 all docs	115 docs citations	115 times ranked	2856 citing authors

#	Article	IF	Citations
1	Topological Principles of Borosilicate Glass Chemistry. Journal of Physical Chemistry B, 2011, 115, 12930-12946.	1.2	289
2	Self-assembly and hydrogelation promoted by F₅-phenylalanine. Soft Matter, 2010, 6, 475-479.	1.2	171
3	Short-and Intermediate-Range Structural Ordering in Glassy Boron Oxide. Science, 1995, 269, 1416-1420.	6.0	132
4	Multiple boron sites in borate glass detected with dynamic angle spinning nuclear magnetic resonance. Journal of Non-Crystalline Solids, 1994, 168, 293-297.	1.5	125
5	High-Resolution Multinuclear NMR Structural Study of Binary Aluminosilicate and Other Related Glasses. Journal of Physical Chemistry B, 2004, 108, 7557-7564.	1.2	113
6	Discovery of Ultra-Crack-Resistant Oxide Glasses with Adaptive Networks. Chemistry of Materials, 2017, 29, 5865-5876.	3.2	113
7	Structure-energy map of alkali borosilicate glasses: Effects of pressure and temperature. Physical Review B, 2007, 76, .	1.1	101
8	Network Modification in Potassium Borate Glasses:â€‰ Structural Studies with NMR and Raman Spectroscopies. The Journal of Physical Chemistry, 1996, 100, 16720-16728.	2.9	99
9	Compositionâ€“structureâ€“property relationships in boroaluminosilicate glasses. Journal of Non-Crystalline Solids, 2012, 358, 993-1002.	1.5	98
10	Structure and mechanical properties of compressed sodium aluminosilicate glasses: Role of non-bridging oxygens. Journal of Non-Crystalline Solids, 2016, 441, 49-57.	1.5	89
11	Ex situ XRD, TEM, IR, Raman and NMR spectroscopy of crystallization of lithium disilicate glass at high pressure. Journal of Non-Crystalline Solids, 2006, 352, 4101-4111.	1.5	86
12	Mixed alkaline earth effect in sodium aluminosilicate glasses. Journal of Non-Crystalline Solids, 2013, 369, 61-68.	1.5	85
13	NMR Spectroscopy in Glass Science: A Review of the Elements. Materials, 2018, 11, 476.	1.3	82
14	NMR study of Q-speciation and connectivity in K2Oâ€“SiO2 glasses with high silica content. Journal of Non-Crystalline Solids, 2003, 331, 100-107.	1.5	74
15	Structural origin of high crack resistance in sodium aluminoborate glasses. Journal of Non-Crystalline Solids, 2017, 460, 54-65.	1.5	69
16	Irreversibility of Pressure Induced Boron Speciation Change in Glass. Scientific Reports, 2014, 4, 3770.	1.6	65
17	Structure of High Alumina Content Al₂O₃â€“SiO₂ Composition Glasses. Journal of Physical Chemistry B, 2008, 112, 16726-16733.	1.2	60
18	Structure of boroaluminosilicate glasses: Impact of [Al<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msub><mml:mrow /><mml:mn>2</mml:mn></mml:msub></mml:math>O<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msub><mml:mrow /><mml:mn>3</mml:mn></mml:msub></mml:math>]/[SiO<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msub><mml:mrow /><mml:	1.1	60

#	Article	IF	Citations
19	The Structure of Sodium Tellurite Glasses: Sodium Cation Environments from Sodium-23 NMR. The Journal of Physical Chemistry, 1995, 99, 5111-5116.	2.9	56
20	Extended structural integrity in network glasses and liquids. Journal of Non-Crystalline Solids, 1997, 222, 190-198.	1.5	55
21	Elastic and micromechanical properties of isostatically compressed sodaâ€“limeâ€“borate glasses. Journal of Non-Crystalline Solids, 2013, 364, 44-52.	1.5	54
22	Composition â€“ structure â€“ property relationships in alkali aluminosilicate glasses: A combined experimental â€“ computational approach towards designing functional glasses. Journal of Non-Crystalline Solids, 2019, 505, 144-153.	1.5	48
23	Composition-Structure-Property Relations of Compressed Borosilicate Glasses. Physical Review Applied, 2014, 2, .	1.5	47
24	Structure-topology-property correlations of sodium phosphosilicate glasses. Journal of Chemical Physics, 2015, 143, 064510.	1.2	47
25	Structure of Glasses in the Pseudobinary System Ga₂Se₃â€“GeSe₂: Violation of Chemical Order and 8-N Coordination Rule. Journal of Physical Chemistry B, 2013, 117, 16594-16601.	1.2	45
26	On the Formation of Tetracoordinate Boron in Rubidium Borate Glasses. Journal of the American Chemical Society, 1995, 117, 1397-1402.	6.6	43
27	Structure of MgO/CaO sodium aluminosilicate glasses: Raman spectroscopy study. Journal of Non-Crystalline Solids, 2017, 470, 145-151.	1.5	43
28	Understanding the structural drivers governing glassâ€“water interactions in borosilicate based model bioactive glasses. Acta Biomaterialia, 2018, 65, 436-449.	4.1	43
29	Structural role of fluorine in amorphous silica. Journal of Non-Crystalline Solids, 2004, 349, 10-15.	1.5	41
30	Impact of ZnO on the structure and properties of sodium aluminosilicate glasses: Comparison with alkaline earth oxides. Journal of Non-Crystalline Solids, 2013, 381, 58-64.	1.5	41
31	Structural and topological aspects of borophosphate glasses and their relation to physical properties. Journal of Chemical Physics, 2015, 142, 184503.	1.2	41
32	Compositional Dependence of Solubility/Retention of Molybdenum Oxides in Aluminoborosilicate-Based Model Nuclear Waste Glasses. Journal of Physical Chemistry B, 2018, 122, 1714-1729.	1.2	41
33	A high-resolution 19F NMR spectroscopic study of barium fluorozirconate glasses and related crystals. Solid State Nuclear Magnetic Resonance, 2005, 27, 77-89.	1.5	39
34	Principles of PyrexÂ® glass chemistry: structureâ€“property relationships. Applied Physics A: Materials Science and Processing, 2014, 116, 491-504.	1.1	39
35	Structureâ^'Property Relations in Mixed-Network Glasses: Multinuclear Solid State NMR Investigations of the System xAl₂O₃:(30 â^') Tj ETQq1 1 0.784314 rgBT /Overlock 10 Tf 50 102 Td (x)P<sub> 3322-3331.	1.5	38
36	NMR Studies of Fluorine in Aluminosilicateâ€“Lanthanum Fluoride Glasses and Glassâ€Ceramics. Journal of the American Ceramic Society, 2002, 85, 1077-1082.	1.9	37

#	Article	IF	Citations
37	Statistical Mechanical Modeling of Borate Glass Structure and Topology: Prediction of Superstructural Units and Glass Transition Temperature. Journal of Physical Chemistry B, 2019, 123, 1206-1213.	1.2	36
38	An insight into the corrosion of alkali aluminoborosilicate glasses in acidic environments. Physical Chemistry Chemical Physics, 2020, 22, 1881-1896.	1.3	35
39	The nature of fluorine in amorphous silica. Journal of Non-Crystalline Solids, 2004, 337, 182-186.	1.5	34
40	Mechanistic understanding of the effect of rigidity percolation on structural relaxation in supercooled germanium selenide liquids. Physical Review B, 2010, 82, .	1.1	34
41	Multinuclear NMR studies of mixed<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:msub><mml:mrow><mml:mtext>Ca</mml:mtext></mml:mrow><mml:mrow><mml:mn>x</mml:mn></mml:mrow></mml:msub></mml:mrow></mml:math>Physical Review B, 2008, 78, .	1.1	33
42	Network Glasses Under Pressure: Permanent Densification in Modifier-Free <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:msub><mml:mrow><mml:mi>Al</mml:mi></mml:mrow><mml:mrow><mml:mn>2</mml:mn></mml:mrow></mml:msub><mml:msub><mml:mrow><mml:mi mathvariant="normal">O</mml:mi></mml:mrow><mml:mrow><mml:mn>3</mml:mn></mml:mrow></mml:msub><mml:mtext>â^'</mml:mtext><mml:msub><mml:mrow><mml:mi mathvariant="normal">B</mml:mi></mml:mrow><mml:mrow><mml:mn>2</mml:mn></mml:mrow></mml:msub></mml:mrow></mml:math>. Physical Review Applied, 2017, 7, .	1.5	33
43	Modifier field strength effects on densification behavior and mechanical properties of alkali aluminoborate glasses. Physical Review Materials, 2017, 1, .	0.9	33
44	Structural Compromise between High Hardness and Crack Resistance in Aluminoborate Glasses. Journal of Physical Chemistry B, 2018, 122, 6287-6295.	1.2	32
45	The role of the network-modifier's field-strength in the chemical durability of aluminoborate glasses. Journal of Non-Crystalline Solids, 2019, 505, 279-285.	1.5	32
46	Sodium tracer diffusion and 11B NMR study of glasses of the type (Na2O)0.17(B2O3)x(SiO2)0.83â^'x. Journal of Non-Crystalline Solids, 2013, 378, 168-176.	1.5	31
47	Cooling rate effects on the structure of 45S5 bioglass: Insights from experiments and simulations. Journal of Non-Crystalline Solids, 2020, 534, 119952.	1.5	31
48	Influence of aluminum speciation on the stability of aluminosilicate glasses against crystallization. Applied Physics Letters, 2012, 101, 041906.	1.5	30
49	Composition and pressure effects on the structure, elastic properties and hardness of aluminoborosilicate glass. Journal of Non-Crystalline Solids, 2020, 530, 119797.	1.5	30
50	Structural dependence of chemical durability in modified aluminoborate glasses. Journal of the American Ceramic Society, 2019, 102, 1157-1168.	1.9	29
51	Structures and mechanisms in clay nanopore trapping of structurally-different fluoroquinolone antimicrobials. Journal of Colloid and Interface Science, 2018, 513, 367-378.	5.0	28
52	Structural Studies of (Ca,Sr)F2 Single Crystals with Raman and NMR Spectroscopies. Journal of the American Ceramic Society, 2005, 88, 2447-2450.	1.9	26
53	Atomic-scale understanding of structural relaxation in simple and complex borosilicate glasses. Physical Review B, 2007, 75, .	1.1	26
54	High temperature thermal expansion behavior of H[Al]ZSM-5 zeolites: The role of BrÃ¸nsted sites. Microporous and Mesoporous Materials, 2006, 87, 217-223.	2.2	25

#	Article	IF	Citations
55	Structure-solubility relationships in fluoride-containing phosphate based bioactive glasses. Journal of Materials Chemistry B, 2015, 3, 9360-9373.	2.9	25
56	Structural and Chemical Approach toward Understanding the Aqueous Corrosion of Sodium Aluminoborate Glasses. Journal of Physical Chemistry B, 2018, 122, 10913-10927.	1.2	24
57	Glass-forming ability of soda lime borate liquids. Journal of Non-Crystalline Solids, 2012, 358, 658-665.	1.5	23
58	Temperature-dependent densification of sodium borosilicate glass. RSC Advances, 2015, 5, 78845-78851.	1.7	23
59	Why does B₂O₃ suppress nepheline (NaAlSiO₄) crystallization in sodium aluminosilicate glasses?. Physical Chemistry Chemical Physics, 2020, 22, 8679-8698.	1.3	23
60	Pressure-Induced Changes in Interdiffusivity and Compressive Stress in Chemically Strengthened Glass. ACS Applied Materials & Interfaces, 2014, 6, 10436-10444.	4.0	22
61	Volume and structural relaxation in compressed sodium borate glass. Physical Chemistry Chemical Physics, 2016, 18, 29879-29891.	1.3	21
62	Effects of Thermal and Pressure Histories on the Chemical Strengthening of Sodium Aluminosilicate Glass. Frontiers in Materials, 2016, 3, .	1.2	20
63	Mechanical property optimization of a zinc borate glass by lanthanum doping. Journal of Non-Crystalline Solids, 2019, 520, 119461.	1.5	20
64	Topological engineering of glasses using temperature-dependent constraints. MRS Bulletin, 2017, 42, 29-33.	1.7	19
65	Direct Observation of Defect Dynamics in Nanocrystalline CaF₂: Results from ¹⁹F MAS NMR Spectroscopy. Journal of Physical Chemistry Letters, 2010, 1, 1126-1129.	2.1	18
66	Combined Experimental and Computational Approach toward the Structural Design of Borosilicate-Based Bioactive Glasses. Journal of Physical Chemistry C, 2020, 124, 17655-17674.	1.5	18
67	Predicting Q-Speciation in Binary Phosphate Glasses Using Statistical Mechanics. Journal of Physical Chemistry B, 2018, 122, 7609-7615.	1.2	17
68	Time-dependent nucleation rate measurements in BaOâ‹…2SiO2 and 5BaOâ‹…8SiO2 glasses. Journal of Non-Crystalline Solids, 2019, 525, 119575.	1.5	15
69	Integrated Approach to Studying the Development and Final Network Properties of Urethane Acrylate Coatings. Macromolecules, 2006, 39, 2126-2136.	2.2	14
70	The Structure of Borophosphosilicate Pure Network Former Glasses Studied by Multinuclear NMR Spectroscopy. Journal of Physical Chemistry C, 2017, 121, 1838-1850.	1.5	13
71	Pressure-induced structural changes in titanophosphate glasses studied by neutron and X-ray total scattering analyses. Journal of Non-Crystalline Solids, 2018, 483, 50-59.	1.5	13
72	Structural drivers controlling sulfur solubility in alkali aluminoborosilicate glasses. Journal of the American Ceramic Society, 2021, 104, 5030-5049.	1.9	13

#	Article	IF	Citations
73	Formation of Periodically-Ordered Calcium Phosphate Nanostructures by Block Copolymer-Directed Self-Assembly. Chemistry of Materials, 2016, 28, 838-847.	3.2	12
74	Pressure-driven structural depolymerization of zinc phosphate glass. Journal of Non-Crystalline Solids, 2017, 469, 31-38.	1.5	12
75	Nano-phase separation and structural ordering in silica-rich mixed network former glasses. Physical Chemistry Chemical Physics, 2018, 20, 15707-15717.	1.3	12
76	Structure and bonding characteristics of chalcogenide glasses in the system BaSeGa2Se3GeSe2. Journal of Non-Crystalline Solids, 2013, 375, 40-46.	1.5	11
77	Microstructure and modification in borate and tellurite glasses. Journal of Non-Crystalline Solids, 1995, 192-193, 157-160.	1.5	10
78	The effect of phosphorus on the properties and structure of GeAsS glasses. Journal of Non-Crystalline Solids, 2001, 284, 34-42.	1.5	10
79	Structure and properties of GeGaP sulfide glasses. Journal of Non-Crystalline Solids, 2004, 345-346, 50-55.	1.5	10
80	Phase-Separated Aluminaâ€“Silica Glass-Based Erbium-Doped Fibers for Optical Amplifier: Material and Optical Characterization along with Amplification Properties. Fibers, 2018, 6, 67.	1.8	10
81	Permanent Densification of Calcium Aluminophosphate Glasses. Frontiers in Materials, 2019, 6, .	1.2	10
82	Nucleation pathways in barium silicate glasses. Scientific Reports, 2021, 11, 69.	1.6	10
83	NMR studies of aluminum speciation in tellurite glasses. Journal of Non-Crystalline Solids, 2001, 284, 9-15.	1.5	9
84	Fluorine incorporation in silica glass by the MCVD process: Study of fluorine incorporation zone, evaluation of optical properties and structure of the glass. Journal of Non-Crystalline Solids, 2008, 354, 5408-5420.	1.5	9
85	Mixed Alkali Effect in Silicate Glass Structure: Viewpoint of ²⁹Si Nuclear Magnetic Resonance and Statistical Mechanics. Journal of Physical Chemistry B, 2020, 124, 10292-10299.	1.2	9
86	Thermal conductivity of densified borosilicate glasses. Journal of Non-Crystalline Solids, 2021, 557, 120644.	1.5	9
87	Achieving ultrahigh crack resistance in glass through humid aging. Physical Review Materials, 2020, 4, .	0.9	9
88	Highâ€coordinated alumina and oxygen triclusters in modified aluminosilicate glasses. International Journal of Applied Glass Science, 2022, 13, 388-401.	1.0	9
89	Crystallization of Silicon Pyrophosphate From Silicophosphate Glasses as Monitored by Multi-Nuclear NMR. Materials Research Society Symposia Proceedings, 2006, 984, 1.	0.1	8
90	Nucleation and early stage crystallization in barium disilicate glass. Journal of Non-Crystalline Solids, 2020, 548, 120330.	1.5	8

#	Article	IF	Citations
91	Low-temperature nucleation anomaly in silicate glasses shown to be artifact in a 5BaOÂ·8SiO2 glass. Nature Communications, 2021, 12, 2026.	5.8	8
92	Combining high hardness and crack resistance in mixed network glasses through high-temperature densification. Physical Review Materials, 2018, 2, .	0.9	8
93	Multi-nuclear NMR studies of borosilicophosphate glasses and microfoams. Journal of Non-Crystalline Solids, 2000, 263-264, 111-116.	1.5	7
94	Temperature-induced structural changes in fluorozirconate glasses and liquids. Physical Review B, 2002, 66, .	1.1	7
95	Glimpsing glass structure under pressure. Science, 2014, 345, 998-999.	6.0	7
96	Boron coordination structure at the surfaces of sodium borosilicate and aluminoborosilicate glasses by B K-edge NEXAFS. Journal of Non-Crystalline Solids, 2020, 545, 120247.	1.5	7
97	Structural densification of lithium phosphoaluminoborate glasses. Journal of the American Ceramic Society, 2021, 104, 1345-1359.	1.9	7
98	Dissolution kinetics of a sodium borosilicate glass in Tris buffer solutions: impact of Tris concentration and acid (HCl/HNO₃) identity. Physical Chemistry Chemical Physics, 2021, 23, 16165-16179.	1.3	7
99	Nanoscale microstructure and chemistry of transparent gahnite glass-ceramics revealed by atom probe tomography. Scripta Materialia, 2021, 203, 114110.	2.6	7
100	Structural model for amorphous aluminosilicates. Journal of Chemical Physics, 2022, 156, 064503.	1.2	7
101	Resolving the Conflict between Strength and Toughness in Bioactive Silicaâ€“Polymer Hybrid Materials. ACS Nano, 2022, 16, 9748-9761.	7.3	7
102	Strong, Tough Glassâ€€eramics for Emerging Markets. International Journal of Applied Glass Science, 2016, 7, 486-491.	1.0	6
103	Predicting Cation Interactions in Alkali Aluminoborate Glasses using Statistical Mechanics. Journal of Non-Crystalline Solids, 2020, 544, 120099.	1.5	6
104	Correlating Sulfur Solubility with Short-to-Intermediate Range Ordering in the Structure of Borosilicate Glasses. Journal of Physical Chemistry C, 2022, 126, 655-674.	1.5	6
105	Competitive effects of modifier charge and size on mechanical and chemical resistance of aluminoborate glasses. Journal of Non-Crystalline Solids, 2018, 499, 264-271.	1.5	5
106	GeAs thiophosphate glasses: properties and NMR spectroscopy. Journal of Non-Crystalline Solids, 2000, 263-264, 117-122.	1.5	4
107	Multiscale Investigation of the Mechanisms Controlling the Corrosion of Borosilicate Glasses in Hyper-Alkaline Media. Journal of Physical Chemistry C, 2020, 124, 27542-27557.	1.5	4
108	Structural control of self-healing silicaâ€“poly(tetrahydropyran)â€“poly(Îµ-caprolactone) hybrids. Journal of Materials Chemistry B, 2021, 9, 4400-4410.	2.9	4

#	Article	IF	Citations
109	Controlled tin catalyzed hydrolysis of 3-acryloxypropyltrimethoxysilane with mono- and multi-functional mercaptans. Journal of Organometallic Chemistry, 2013, 724, 213-224.	0.8	3
110	Quantitative Spectroscopic Analysis of Water Populations in the Hydrated Nanopore Environments of a Natural Montmorillonite. Journal of Physical Chemistry C, 2021, 125, 26552-26565.	1.5	3
111	Compositional dependence of crystallization and chemical durability in alkali aluminoborosilicate glasses. Journal of Non-Crystalline Solids, 2022, 590, 121694.	1.5	3
112	Force spectroscopy of hepatocytic extracellular matrix components. Ultramicroscopy, 2009, 109, 942-947.	0.8	2
113	Understanding cracking behavior of glass from its response to hydrostatic compression. Physical Review Materials, 2020, 4, .	0.9	2
114	Correlating structure with mechanical properties in lithium borophosphate glasses. International Journal of Applied Glass Science, 2023, 14, 38-51.	1.0	2