Randall E Youngman

List of Publications by Citations

111 papers	3,011 citations	31 h-index	50 g-index
115 ext. papers	3,504 ext. citations	4.8 avg, IF	5.45 L-index

#	Paper	IF	Citations
111	Topological principles of borosilicate glass chemistry. *Journal of Physical Chemistry B*, **2011**, 115, 12930-46	3.4	234
110	Self-assembly and hydrogelation promoted by F5-phenylalanine. *Soft Matter*, **2010**, 6, 475-479	3.6	152
109	Short-and Intermediate-Range Structural Ordering in Glassy Boron Oxide. *Science*, **1995**, 269, 1416-20	33.3	116
108	Multiple boron sites in borate glass detected with dynamic angle spinning nuclear magnetic resonance. *Journal of Non-Crystalline Solids*, **1994**, 168, 293-297	3.9	109
107	High-Resolution Multinuclear NMR Structural Study of Binary Aluminosilicate and Other Related Glasses. *Journal of Physical Chemistry B*, **2004**, 108, 7557-7564	3.4	102
106	Network Modification in Potassium Borate Glasses: Structural Studies with NMR and Raman Spectroscopies. *The Journal of Physical Chemistry*, **1996**, 100, 16720-16728		90
105	Structure-energy map of alkali borosilicate glasses: Effects of pressure and temperature. *Physical Review B*, **2007**, 76,	3.3	85
104	Discovery of Ultra-Crack-Resistant Oxide Glasses with Adaptive Networks. *Chemistry of Materials*, **2017**, 29, 5865-5876	9.6	77
103	Composition–structure–property relationships in boroaluminosilicate glasses. *Journal of Non-Crystalline Solids*, **2012**, 358, 993-1002	3.9	76
102	Structure and mechanical properties of compressed sodium aluminosilicate glasses: Role of non-bridging oxygens. *Journal of Non-Crystalline Solids*, **2016**, 441, 49-57	3.9	71
101	NMR study of Q-speciation and connectivity in K2O–SiO2 glasses with high silica content. *Journal of Non-Crystalline Solids*, **2003**, 331, 100-107	3.9	68
100	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	3.9	65
99	Mixed alkaline earth effect in sodium aluminosilicate glasses. *Journal of Non-Crystalline Solids*, **2013**, 369, 61-68	3.9	62
98	Structural origin of high crack resistance in sodium aluminoborate glasses. *Journal of Non-Crystalline Solids*, **2017**, 460, 54-65	3.9	53
97	Extended structural integrity in network glasses and liquids. *Journal of Non-Crystalline Solids*, **1997**, 222, 190-198	3.9	53
96	Structure of boroaluminosilicate glasses: Impact of [Al2O3]/[SiO2] ratio on the structural role of sodium. *Physical Review B*, **2012**, 86,	3.3	51
95	Elastic and micromechanical properties of isostatically compressed soda–lime–borate glasses. *Journal of Non-Crystalline Solids*, **2013**, 364, 44-52	3.9	50

94	Structure of high alumina content Al2O3-SiO2 composition glasses. *Journal of Physical Chemistry B*, **2008**, 112, 16726-33	3.4	48
93	The Structure of Sodium Tellurite Glasses: Sodium Cation Environments from Sodium-23 NMR. *The Journal of Physical Chemistry*, **1995**, 99, 5111-5116		48
92	NMR Spectroscopy in Glass Science: A Review of the Elements. *Materials*, **2018**, 11,	3.5	46
91	Irreversibility of pressure induced boron speciation change in glass. *Scientific Reports*, **2014**, 4, 3770	4.9	46
90	On the Formation of Tetracoordinate Boron in Rubidium Borate Glasses. *Journal of the American Chemical Society*, **1995**, 117, 1397-1402	16.4	42
89	Composition-Structure-Property Relations of Compressed Borosilicate Glasses. *Physical Review Applied*, **2014**, 2,	4.3	38
88	Structure of glasses in the pseudobinary system Ga(2)Se(3)-GeSe(2): violation of chemical order and 8-N coordination rule. *Journal of Physical Chemistry B*, **2013**, 117, 16594-601	3.4	36
87	A high-resolution 19F NMR spectroscopic study of barium fluorozirconate glasses and related crystals. *Solid State Nuclear Magnetic Resonance*, **2005**, 27, 77-89	3.1	36
86	Structure-topology-property correlations of sodium phosphosilicate glasses. *Journal of Chemical Physics*, **2015**, 143, 064510	3.9	35
85	Mechanistic understanding of the effect of rigidity percolation on structural relaxation in supercooled germanium selenide liquids. *Physical Review B*, **2010**, 82,	3.3	33
84	Understanding the structural drivers governing glass-water interactions in borosilicate based model bioactive glasses. *Acta Biomaterialia*, **2018**, 65, 436-449	10.8	33
83	Principles of Pyrex® glass chemistry: structure–property relationships. *Applied Physics A: Materials Science and Processing*, **2014**, 116, 491-504	2.6	32
82	NMR Studies of Fluorine in Aluminosilicate–Lanthanum Fluoride Glasses and Glass-Ceramics. *Journal of the American Ceramic Society*, **2004**, 85, 1077-1082	3.8	32
81	The nature of fluorine in amorphous silica. *Journal of Non-Crystalline Solids*, **2004**, 337, 182-186	3.9	32
80	Structural and topological aspects of borophosphate glasses and their relation to physical properties. *Journal of Chemical Physics*, **2015**, 142, 184503	3.9	30
79	Structural role of fluorine in amorphous silica. *Journal of Non-Crystalline Solids*, **2004**, 349, 10-15	3.9	30
78	Composition–structure–property relationships in alkali aluminosilicate glasses: A combined experimental–computational approach towards designing functional glasses. *Journal of Non-Crystalline Solids*, **2019**, 505, 144-153	3.9	30
77	Multinuclear NMR studies of mixed Ca1−xSrxF2 crystals. *Physical Review B*, **2008**, 78,	3.3	29

76	Sodium tracer diffusion and 11B NMR study of glasses of the type (Na2O)0.17(B2O3)x(SiO2)0.83−x. *Journal of Non-Crystalline Solids*, **2013**, 378, 168-176	3.9	28
75	Influence of aluminum speciation on the stability of aluminosilicate glasses against crystallization. *Applied Physics Letters*, **2012**, 101, 041906	3.4	28
74	Structure−Property Relations in Mixed-Network Glasses: Multinuclear Solid State NMR Investigations of the System xAl2O3:(30 − x)P2O5:70SiO2. *Journal of Physical Chemistry C*, **2009**, 113, 3322-3331	3.8	28
73	Compositional Dependence of Solubility/Retention of Molybdenum Oxides in Aluminoborosilicate-Based Model Nuclear Waste Glasses. *Journal of Physical Chemistry B*, **2018**, 122, 1714-1729	3.4	26
72	Structure of MgO/CaO sodium aluminosilicate glasses: Raman spectroscopy study. *Journal of Non-Crystalline Solids*, **2017**, 470, 145-151	3.9	24
71	Atomic-scale understanding of structural relaxation in simple and complex borosilicate glasses. *Physical Review B*, **2007**, 75,	3.3	24
70	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	3.9	23
69	Temperature-dependent densification of sodium borosilicate glass. *RSC Advances*, **2015**, 5, 78845-78851	3.7	22
68	Modifier field strength effects on densification behavior and mechanical properties of alkali aluminoborate glasses. *Physical Review Materials*, **2017**, 1,	3.2	22
67	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	3.4	22
66	Network Glasses Under Pressure: Permanent Densification in Modifier-Free Al2O3−B2O3−P2O5−SiO2 Systems. *Physical Review Applied*, **2017**, 7,	4.3	21
65	Structures and mechanisms in clay nanopore trapping of structurally-different fluoroquinolone antimicrobials. *Journal of Colloid and Interface Science*, **2018**, 513, 367-378	9.3	21
64	Structure-solubility relationships in fluoride-containing phosphate based bioactive glasses. *Journal of Materials Chemistry B*, **2015**, 3, 9360-9373	7.3	20
63	Structural Studies of (Ca,Sr)F2 Single Crystals with Raman and NMR Spectroscopies. *Journal of the American Ceramic Society*, **2005**, 88, 2447-2450	3.8	20
62	Pressure-induced changes in interdiffusivity and compressive stress in chemically strengthened glass. *ACS Applied Materials & Interfaces*, **2014**, 6, 10436-44	9.5	19
61	Glass-forming ability of soda lime borate liquids. *Journal of Non-Crystalline Solids*, **2012**, 358, 658-665	3.9	19
60	An insight into the corrosion of alkali aluminoborosilicate glasses in acidic environments. *Physical Chemistry Chemical Physics*, **2020**, 22, 1881-1896	3.6	19
59	Volume and structural relaxation in compressed sodium borate glass. *Physical Chemistry Chemical Physics*, **2016**, 18, 29879-29891	3.6	19

58	High temperature thermal expansion behavior of H[Al]ZSM-5 zeolites: The role of Brønsted sites. *Microporous and Mesoporous Materials*, **2006**, 87, 217-223	5.3	18
57	Topological engineering of glasses using temperature-dependent constraints. *MRS Bulletin*, **2017**, 42, 29-33	3.2	17
56	Structural dependence of chemical durability in modified aluminoborate glasses. *Journal of the American Ceramic Society*, **2019**, 102, 1157-1168	3.8	17
55	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	3.9	17
54	Structural Compromise between High Hardness and Crack Resistance in Aluminoborate Glasses. *Journal of Physical Chemistry B*, **2018**, 122, 6287-6295	3.4	17
53	Direct Observation of Defect Dynamics in Nanocrystalline CaF2: Results from 19F MAS NMR Spectroscopy. *Journal of Physical Chemistry Letters*, **2010**, 1, 1126-1129	6.4	16
52	Cooling rate effects on the structure of 45S5 bioglass: Insights from experiments and simulations. *Journal of Non-Crystalline Solids*, **2020**, 534, 119952	3.9	15
51	Composition and pressure effects on the structure, elastic properties and hardness of aluminoborosilicate glass. *Journal of Non-Crystalline Solids*, **2020**, 530, 119797	3.9	15
50	Why does BO suppress nepheline (NaAlSiO) crystallization in sodium aluminosilicate glasses?. *Physical Chemistry Chemical Physics*, **2020**, 22, 8679-8698	3.6	15
49	Structural and Chemical Approach toward Understanding the Aqueous Corrosion of Sodium Aluminoborate Glasses. *Journal of Physical Chemistry B*, **2018**, 122, 10913-10927	3.4	14
48	Integrated Approach to Studying the Development and Final Network Properties of Urethane Acrylate Coatings. *Macromolecules*, **2006**, 39, 2126-2136	5.5	13
47	Predicting Q-Speciation in Binary Phosphate Glasses Using Statistical Mechanics. *Journal of Physical Chemistry B*, **2018**, 122, 7609-7615	3.4	11
46	Structure and bonding characteristics of chalcogenide glasses in the system BaSeGa2Se3GeSe2. *Journal of Non-Crystalline Solids*, **2013**, 375, 40-46	3.9	11
45	Effects of Thermal and Pressure Histories on the Chemical Strengthening of Sodium Aluminosilicate Glass. *Frontiers in Materials*, **2016**, 3,	4	11
44	Time-dependent nucleation rate measurements in BaO?2SiO2 and 5BaO?8SiO2 glasses. *Journal of Non-Crystalline Solids*, **2019**, 525, 119575	3.9	11
43	Pressure-driven structural depolymerization of zinc phosphate glass. *Journal of Non-Crystalline Solids*, **2017**, 469, 31-38	3.9	10
42	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	3.9	10
41	Formation of Periodically-Ordered Calcium Phosphate Nanostructures by Block Copolymer-Directed Self-Assembly. *Chemistry of Materials*, **2016**, 28, 838-847	9.6	10

40	Structure and properties of GeGaP sulfide glasses. *Journal of Non-Crystalline Solids*, **2004**, 345-346, 50-55	3.9	10
39	The effect of phosphorus on the properties and structure of GeAsS glasses. *Journal of Non-Crystalline Solids*, **2001**, 284, 34-42	3.9	10
38	The Structure of Borophosphosilicate Pure Network Former Glasses Studied by Multinuclear NMR Spectroscopy. *Journal of Physical Chemistry C*, **2017**, 121, 1838-1850	3.8	9
37	Nano-phase separation and structural ordering in silica-rich mixed network former glasses. *Physical Chemistry Chemical Physics*, **2018**, 20, 15707-15717	3.6	9
36	Mechanical property optimization of a zinc borate glass by lanthanum doping. *Journal of Non-Crystalline Solids*, **2019**, 520, 119461	3.9	8
35	NMR studies of aluminum speciation in tellurite glasses. *Journal of Non-Crystalline Solids*, **2001**, 284, 9-15	3.9	8
34	Microstructure and modification in borate and tellurite glasses. *Journal of Non-Crystalline Solids*, **1995**, 192-193, 157-160	3.9	8
33	Combined Experimental and Computational Approach toward the Structural Design of Borosilicate-Based Bioactive Glasses. *Journal of Physical Chemistry C*, **2020**, 124, 17655-17674	3.8	8
32	Amorphous Materials. Glimpsing glass structure under pressure. *Science*, **2014**, 345, 998-9	33.3	7
31	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	3.9	7
30	Temperature-induced structural changes in fluorozirconate glasses and liquids. *Physical Review B*, **2002**, 66,	3.3	7
29	Multi-nuclear NMR studies of borosilicophosphate glasses and microfoams. *Journal of Non-Crystalline Solids*, **2000**, 263-264, 111-116	3.9	7
28	Combining high hardness and crack resistance in mixed network glasses through high-temperature densification. *Physical Review Materials*, **2018**, 2,	3.2	7
27	Mixed Alkali Effect in Silicate Glass Structure: Viewpoint of Si Nuclear Magnetic Resonance and Statistical Mechanics. *Journal of Physical Chemistry B*, **2020**, 124, 10292-10299	3.4	6
26	Permanent Densification of Calcium Aluminophosphate Glasses. *Frontiers in Materials*, **2019**, 6,	4	5
25	Competitive effects of modifier charge and size on mechanical and chemical resistance of aluminoborate glasses. *Journal of Non-Crystalline Solids*, **2018**, 499, 264-271	3.9	5
24	Crystallization of Silicon Pyrophosphate from Silicophosphate Glasses as Monitored by Multi-Nuclear NMR. *Materials Research Society Symposia Proceedings*, **2006**, 984, 1		5
23	Low-temperature nucleation anomaly in silicate glasses shown to be artifact in a 5BaO□8SiO glass. *Nature Communications*, **2021**, 12, 2026	17.4	5

22	Strong, Tough Glass-Ceramics for Emerging Markets. *International Journal of Applied Glass Science*, **2016**, 7, 486-491	1.8	5
21	Phase-Separated Alumina□Silica Glass-Based Erbium-Doped Fibers for Optical Amplifier: Material and Optical Characterization along with Amplification Properties. *Fibers*, **2018**, 6, 67	3.7	5
20	GeAs thiophosphate glasses: properties and NMR spectroscopy. *Journal of Non-Crystalline Solids*, **2000**, 263-264, 117-122	3.9	4
19	Achieving ultrahigh crack resistance in glass through humid aging. *Physical Review Materials*, **2020**, 4,	3.2	4
18	Structural drivers controlling sulfur solubility in alkali aluminoborosilicate glasses. *Journal of the American Ceramic Society*, **2021**, 104, 5030-5049	3.8	4
17	Nucleation pathways in barium silicate glasses. *Scientific Reports*, **2021**, 11, 69	4.9	4
16	Controlled tin catalyzed hydrolysis of 3-acryloxypropyltrimethoxysilane with mono- and multi-functional mercaptans. *Journal of Organometallic Chemistry*, **2013**, 724, 213-224	2.3	3
15	Predicting Cation Interactions in Alkali Aluminoborate Glasses using Statistical Mechanics. *Journal of Non-Crystalline Solids*, **2020**, 544, 120099	3.9	3
14	Nucleation and early stage crystallization in barium disilicate glass. *Journal of Non-Crystalline Solids*, **2020**, 548, 120330-120330	3.9	3
13	Thermal conductivity of densified borosilicate glasses. *Journal of Non-Crystalline Solids*, **2021**, 557, 120644	3.9	3
12	Dissolution kinetics of a sodium borosilicate glass in Tris buffer solutions: impact of Tris concentration and acid (HCl/HNO) identity. *Physical Chemistry Chemical Physics*, **2021**, 23, 16165-16179	3.6	3
11	Force spectroscopy of hepatocytic extracellular matrix components. *Ultramicroscopy*, **2009**, 109, 942-7	3.1	2
10	Understanding cracking behavior of glass from its response to hydrostatic compression. *Physical Review Materials*, **2020**, 4,	3.2	2
9	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	3.9	2
8	Multiscale Investigation of the Mechanisms Controlling the Corrosion of Borosilicate Glasses in Hyper-Alkaline Media. *Journal of Physical Chemistry C*, **2020**, 124, 27542-27557	3.8	2
7	Structural control of self-healing silica-poly(tetrahydropyran)-poly(□caprolactone) hybrids. *Journal of Materials Chemistry B*, **2021**, 9, 4400-4410	7.3	2
6	Nanoscale microstructure and chemistry of transparent gahnite glass-ceramics revealed by atom probe tomography. *Scripta Materialia*, **2021**, 203, 114110	5.6	2
5	Correlating Sulfur Solubility with Short-to-Intermediate Range Ordering in the Structure of Borosilicate Glasses. *Journal of Physical Chemistry C*, **2022**, 126, 655-674	3.8	1

4	Structural model for amorphous aluminosilicates.. *Journal of Chemical Physics*, **2022**, 156, 064503	3.9	1
3	Borosilicate Glasses **2021**, 867-878		1
2	Structural densification of lithium phosphoaluminoborate glasses. *Journal of the American Ceramic Society*, **2021**, 104, 1345-1359	3.8	0
1	Compositional dependence of crystallization and chemical durability in alkali aluminoborosilicate glasses. *Journal of Non-Crystalline Solids*, **2022**, 590, 121694	3.9	0