

Catalin Gainaru

List of Publications by Year in descending order

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91
papers

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citations

126858

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161767

54
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92
all docs

92
docs citations

92
times ranked

1947
citing authors

#	ARTICLE	IF	CITATIONS
1	Water's second glass transition. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, 17720-17725.	3.3	243
2	Structure and dynamics of monohydroxy alcohols—Milestones towards their microscopic understanding, 100 years after Debye. Physics Reports, 2014, 545, 125-195.	10.3	221
3	Nuclear-Magnetic-Resonance Measurements Reveal the Origin of the Debye Process in Monohydroxy Alcohols. Physical Review Letters, 2010, 105, 258303.	2.9	158
4	Colloquium: Water's controversial glass transitions. Reviews of Modern Physics, 2016, 88, .	16.4	146
5	Fundamental Limitations of Ionic Conductivity in Polymerized Ionic Liquids. Macromolecules, 2018, 51, 8637-8645.	2.2	103
6	Mechanism of Conductivity Relaxation in Liquid and Polymeric Electrolytes: Direct Link between Conductivity and Diffusivity. Journal of Physical Chemistry B, 2016, 120, 11074-11083.	1.2	101
7	Shear-Modulus Investigations of Monohydroxy Alcohols: Evidence for a Short-Chain-Polymer Rheological Response. Physical Review Letters, 2014, 112, 098301.	2.9	98
8	Hydrogen-Bond Equilibria and Lifetimes in a Monohydroxy Alcohol. Physical Review Letters, 2011, 107, 118304.	2.9	82
9	Liquid 1-propanol studied by neutron scattering, near-infrared, and dielectric spectroscopy. Journal of Chemical Physics, 2014, 140, 124501.	1.2	68
10	The dynamic susceptibility in glass forming molecular liquids: The search for universal relaxation patterns II. Journal of Chemical Physics, 2006, 124, 134503.	1.2	65
11	From a Simple Liquid to a Polymer Melt: NMR Relaxometry Study of Polybutadiene. Physical Review Letters, 2006, 97, 207803.	2.9	64
12	Dielectric Response of Deeply Supercooled Hydration Water in the Connective Tissue Proteins Collagen and Elastin. Journal of Physical Chemistry B, 2009, 113, 12628-12631.	1.2	61
13	Debye relaxation and 250 K anomaly in glass forming monohydroxy alcohols. Journal of Chemical Physics, 2013, 138, 094505.	1.2	59
14	Anomalously large isotope effect in the glass transition of water. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 17402-17407.	3.3	57
15	Evolution of excess wing and β^2 -process in simple glass formers. Journal of Chemical Physics, 2009, 131, 184510.	1.2	56
16	A Dielectric Study of Oligo- and Poly(propylene glycol). Macromolecules, 2010, 43, 1907-1914.	2.2	56
17	Fundamental parameters governing ion conductivity in polymer electrolytes. Electrochimica Acta, 2019, 299, 191-196.	2.6	56
18	Impact of Hydrogen Bonding on Dynamics of Hydroxyl-Terminated Polydimethylsiloxane. Macromolecules, 2016, 49, 3138-3147.	2.2	55

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19	From Simple Liquid to Polymer Melt. Glassy and Polymer Dynamics Studied by Fast Field Cycling NMR Relaxometry: Rouse Regime. <i>Macromolecules</i> , 2008, 41, 5322-5332.	2.2	54
20	The glass transition in high-density amorphous ice. <i>Journal of Non-Crystalline Solids</i> , 2015, 407, 423-430.	1.5	52
21	Nuclear magnetic resonance and dielectric spectroscopy of a simple supercooled liquid: 2-methyl tetrahydrofuran. <i>Journal of Chemical Physics</i> , 2003, 118, 7431.	1.2	49
22	Identification of Structural Relaxation in the Dielectric Response of Water. <i>Physical Review Letters</i> , 2016, 116, 237601.	2.9	48
23	From Simple Liquid to Polymer Melt. Glassy and Polymer Dynamics Studied by Fast Field Cycling NMR Relaxometry: Low and High Molecular Weight Limit. <i>Macromolecules</i> , 2008, 41, 5313-5321.	2.2	44
24	Nuclear magnetic resonance and dielectric noise study of spectral densities and correlation functions in the glass forming monoalcohol 2-ethyl-1-hexanol. <i>Journal of Chemical Physics</i> , 2011, 135, 174511.	1.2	43
25	Oscillatory shear and high-pressure dielectric study of 5-methyl-3-heptanol. <i>Colloid and Polymer Science</i> , 2014, 292, 1913-1921.	1.0	42
26	NMR and dielectric studies of hydrated collagen and elastin: Evidence for a delocalized secondary relaxation. <i>Journal of Non-Crystalline Solids</i> , 2011, 357, 655-663.	1.5	41
27	On the nature of the high-frequency relaxation in a molecular glass former: A joint study of glycerol by field cycling NMR, dielectric spectroscopy, and light scattering. <i>Journal of Chemical Physics</i> , 2008, 128, 174505.	1.2	40
28	Experimental studies of Debye-like process and structural relaxation in mixtures of 2-ethyl-1-hexanol and 2-ethyl-1-hexyl bromide. <i>Journal of Chemical Physics</i> , 2012, 137, 144502.	1.2	40
29	Slow rheological mode in glycerol and glycerol-water mixtures. <i>Physical Chemistry Chemical Physics</i> , 2018, 20, 1716-1723.	1.3	39
30	Low-temperature dielectric relaxation of molecular glasses: Crossover from the nearly constant loss to the tunneling regime. <i>Physical Review B</i> , 2005, 72, .	1.1	37
31	Communications: High-pressure dielectric scaling study of a monohydroxy alcohol. <i>Journal of Chemical Physics</i> , 2010, 132, 181101.	1.2	37
32	Shear and dielectric responses of propylene carbonate, tripropylene glycol, and a mixture of two secondary amides. <i>Journal of Chemical Physics</i> , 2012, 137, 064508.	1.2	37
33	Diluting the hydrogen bonds in viscous solutions of n-butanol with n-bromobutane: II. A comparison of rotational and translational motions. <i>Journal of Chemical Physics</i> , 2011, 134, 064512.	1.2	35
34	Field-Cycling Relaxometry as a Molecular Rheology Technique: Common Analysis of NMR, Shear Modulus and Dielectric Loss Data of Polymers vs Dendrimers. <i>Macromolecules</i> , 2015, 48, 7521-7534.	2.2	32
35	How do high pressures change the Debye process of 4-methyl-3-heptanol?. <i>Journal of Chemical Physics</i> , 2013, 139, 064501.	1.2	29
36	Broadband dynamics in neat 4-methyl-3-heptanol and in mixtures with 2-ethyl-1-hexanol. <i>Journal of Chemical Physics</i> , 2013, 139, 134503.	1.2	28

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37	Translational and reorientational dynamics in deep eutectic solvents. <i>Journal of Chemical Physics</i> , 2021, 154, 154501.	1.2	27
38	Evolution of dynamic susceptibility in molecular glass formers—a critical assessment. <i>Journal of Physics Condensed Matter</i> , 2007, 19, 205104.	0.7	26
39	Mixed Debye-type liquids studied by dielectric, shear mechanical, nuclear magnetic resonance, and near-infrared spectroscopy. <i>Journal of Non-Crystalline Solids</i> , 2015, 407, 384-391.	1.5	26
40	Surface and confinement effects on the dielectric relaxation of a monohydroxy alcohol. <i>Journal of Chemical Physics</i> , 2011, 135, 174510.	1.2	25
41	Generic Primary Mechanical Response of Viscous Liquids. <i>Physical Review Letters</i> , 2017, 119, 248001.	2.9	25
42	Systematic differences in the relaxation stretching of polar molecular liquids probed by dielectric vs magnetic resonance and photon correlation spectroscopy. <i>Journal of Chemical Physics</i> , 2020, 153, 124510.	1.2	25
43	Relaxation dynamics and transformation kinetics of deeply supercooled water: Temperature, pressure, doping, and proton/deuteron isotope effects. <i>Journal of Chemical Physics</i> , 2017, 147, 034506.	1.2	23
44	Secondary Water Relaxation in a Water/Dimethyl Sulfoxide Mixture Revealed by Deuteron Nuclear Magnetic Resonance and Dielectric Spectroscopy. <i>Journal of Physical Chemistry B</i> , 2011, 115, 11588-11596.	1.2	22
45	Dynamics enhanced by HCl doping triggers 60% Pauling entropy release at the ice XII–XIV transition. <i>Nature Communications</i> , 2015, 6, 7349.	5.8	22
46	Strongly Correlated Ion Dynamics in Plastic Ionic Crystals and Polymerized Ionic Liquids. <i>Journal of Physical Chemistry C</i> , 2020, 124, 17889-17896.	1.5	22
47	Coupling of the electrical conductivity to the structural relaxation, absence of physical aging on the time scale of the Debye process, and number of correlated molecules in the supercooled monohydroxy alcohol 2-ethylhexanol. <i>Journal of Non-Crystalline Solids</i> , 2010, 356, 542-546.	1.5	21
48	Connecting structurally and dynamically detected signatures of supramolecular Debye liquids. <i>Journal of Chemical Physics</i> , 2017, 147, 234501.	1.2	21
49	Oligomer-to-Polymer Transition of Poly(propylene glycol) Revealed by Dielectric Normal Modes. <i>Macromolecules</i> , 2009, 42, 7616-7618.	2.2	20
50	Energy landscape in molecular glasses probed by high-resolution dielectric experiments. <i>Physical Review B</i> , 2010, 82, .	1.1	20
51	Reorientational Dynamics of Organophosphate Glass Formers – a Joint Study by ³¹ P NMR, Dielectric Spectroscopy and Light Scattering. <i>Zeitschrift Fur Physikalische Chemie</i> , 2012, 226, 1149-1168.	1.4	20
52	Evolution of the dynamic susceptibility of simple glass formers in the strongly supercooled regime. <i>Journal of Physics Condensed Matter</i> , 2003, 15, S835-S847.	0.7	19
53	Spectral shape simplicity of viscous materials. <i>Physical Review E</i> , 2019, 100, 020601.	0.8	19
54	Supramolecular x-ray signature of susceptibility amplification in hydrogen-bonded liquids. <i>Physical Review E</i> , 2014, 90, 052807.	0.8	18

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55	Structure and dynamics of short-chain polymerized ionic liquids. <i>Journal of Chemical Physics</i> , 2019, 151, 034903.	1.2	18
56	Dynamics in Supercooled Secondary Amide Mixtures: Dielectric and Hydrogen Bond Specific Spectroscopies. <i>Journal of Physical Chemistry B</i> , 2015, 119, 15769-15779.	1.2	16
57	Proton Conductivity in Phosphoric Acid: The Role of Quantum Effects. <i>Physical Review Letters</i> , 2016, 117, 156001.	2.9	16
58	Doping-enhanced dipolar dynamics in ice V as a precursor of hydrogen ordering in ice XIII. <i>Physical Review B</i> , 2016, 94, .	1.1	16
59	Local and global dynamics of the viscous ion conductors $2\text{Ca}(\text{NO}_3)_2\text{-}3\text{KNO}_3$ and $2\text{Ca}(\text{NO}_3)_2\text{-}3\text{RbNO}_3$ probed by ^{87}Rb nuclear magnetic resonance and shear rheology. <i>Journal of Chemical Physics</i> , 2019, 150, 194503.	1.2	16
60	Deeply supercooled aqueous LiCl solution studied by frequency-resolved shear rheology. <i>Journal of Chemical Physics</i> , 2019, 150, 234505.	1.2	16
61	Nuclear Spin Relaxation in Viscous Liquids: Relaxation Stretching of Single-Particle Probes. <i>Journal of Physical Chemistry B</i> , 2021, 125, 13519-13532.	1.2	16
62	Ion sweeping in conducting dielectric materials. <i>European Physical Journal B</i> , 2010, 75, 209-216.	0.6	15
63	Communication: Correlation of terminal relaxation rate and viscosity enhancement in supramolecular small-molecule liquids. <i>Journal of Chemical Physics</i> , 2018, 148, 221102.	1.2	15
64	Tuning the dynamics of imidazolium-based ionic liquids via hydrogen bonding. I. The viscous regime. <i>Journal of Chemical Physics</i> , 2020, 153, 194501.	1.2	14
65	Transient Nonlinear Response of Dynamically Decoupled Ionic Conductors. <i>Physical Review Letters</i> , 2018, 121, 064503.	2.9	13
66	Broadened dielectric loss spectra and reduced dispersion strength of viscous glycerol in a connective tissue protein. <i>Journal of Non-Crystalline Solids</i> , 2010, 356, 743-746.	1.5	12
67	Dynamics in Glass Forming Sulfuric and Nitric Acid Hydrates. <i>Journal of Physical Chemistry B</i> , 2013, 117, 12164-12174.	1.2	12
68	A Rayleighian approach for modeling kinetics of ionic transport in polymeric media. <i>Journal of Chemical Physics</i> , 2017, 146, 064902.	1.2	12
69	Coexistence of two structural relaxation processes in monohydroxy alcohol-alkyl halogen mixtures: Dielectric and rheological studies. <i>Journal of Chemical Physics</i> , 2018, 149, 044509.	1.2	12
70	Linear and nonlinear shear studies reveal supramolecular responses in supercooled monohydroxy alcohols with faint dielectric signatures. <i>Journal of Chemical Physics</i> , 2019, 150, 104501.	1.2	11
71	Molecular Cross-correlations Govern Structural Rearrangements in a Nonassociating Polar Glass Former. <i>Physical Review Letters</i> , 2022, 128, .	2.9	11
72	Molecular Motions in Supercooled and Glassy Ibuprofen: Deuteron Magnetic Resonance and High-Resolution Rheology Study. <i>Journal of Physical Chemistry B</i> , 2015, 119, 5087-5095.	1.2	10

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73	Amorphous and crystalline ices studied by dielectric spectroscopy. <i>Journal of Chemical Physics</i> , 2019, 150, 244501.	1.2	10
74	The relaxation behavior of supercooled and glassy imidacloprid. <i>Journal of Chemical Physics</i> , 2021, 155, 174502.	1.2	10
75	Vibrational study of anharmonicity, supramolecular structure, and hydrogen bonding in two octanol isomers. <i>Vibrational Spectroscopy</i> , 2015, 79, 59-66.	1.2	9
76	Experimental evidence for two distinct deeply supercooled liquid states of water – Response to – Comment on – Water's second glass transition – , by G.P. Johari, <i>Thermochim. Acta</i> (2015). <i>Thermochimica Acta</i> , 2015, 617, 200-207.	1.2	8
77	Deuteron nuclear magnetic resonance and dielectric study of host and guest dynamics in KOH-doped tetrahydrofuran clathrate hydrate. <i>Physical Review B</i> , 2010, 81, .	1.1	7
78	Communication: Nonadditive dielectric susceptibility spectra of associating liquids. <i>Journal of Chemical Physics</i> , 2017, 146, 101101.	1.2	6
79	Scaling of Suprastructure and Dynamics in Pure and Mixed Debye Liquids. <i>Advances in Dielectrics</i> , 2018, , 121-171.	1.2	6
80	First-Order and Third-Order Nonlinearities from Medium-Amplitude Oscillatory Shearing of Hydrogen-Bonded Polymers and Other Viscoelastic Materials. <i>Macromolecules</i> , 2019, 52, 8690-8704.	2.2	6
81	Nonlinear electrical and rheological spectroscopies identify structural and supramolecular relaxations in a model peptide. <i>Soft Matter</i> , 2019, 15, 4334-4345.	1.2	6
82	Suppression of Orientational Correlations in the Viscous-Liquid State of Hyperquenched Pressure-Densified Glycerol. <i>Physical Review Letters</i> , 2020, 125, 065503.	2.9	5
83	Rheology based estimates of self- and collective diffusivities in viscous liquids. <i>Journal of Chemical Physics</i> , 2021, 155, 011101.	1.2	5
84	The relationship between charge and molecular dynamics in viscous acid hydrates. <i>Journal of Chemical Physics</i> , 2021, 155, 014505.	1.2	5
85	Dynamics of Glass Forming Ammonia Hydrates. <i>Journal of Physical Chemistry B</i> , 2013, 117, 12157-12163.	1.2	4
86	First- and third-order shear nonlinearities across the structural relaxation peak of the deeply supercooled pharmaceutical liquid indomethacin. <i>Journal of Chemical Physics</i> , 2021, 155, 134901.	1.2	3
87	Predicting Dielectric and Shear-Rheology Properties of Glass-Forming Pharmaceutical Liquids from Each Other: Applications and Limitations. <i>Molecular Pharmaceutics</i> , 2022, 19, 1586-1597.	2.3	3
88	Simple-liquid dynamics emerging in the mechanical shear spectra of poly(propylene glycol). <i>Colloid and Polymer Science</i> , 2017, 295, 2433.	1.0	2
89	Modulation of Cation Diffusion by Reversible Supramolecular Assemblies in Ionic Liquid-Based Nanocomposites. <i>ACS Applied Materials & Interfaces</i> , 2020, 12, 31842-31851.	4.0	2
90	How the cation size impacts on the relaxational and diffusional dynamics of supercooled butylammonium-based ionic liquids: DPEBA – TFSI versus BTMA – TFSI. <i>Zeitschrift Fur Physikalische Chemie</i> , 2021, .	1.4	1

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91	Isotope effects on the dynamics of amorphous ices and aqueous phosphoric acid solutions. Physical Chemistry Chemical Physics, 2022, 24, 14846-14856.	1.3	1