David S Simmons

List of Publications by Year
in descending order

45 papers	1,574 citations	279487 23 h-index	301761 39 g-index
46 all docs	46 docs citations	46 times ranked	1132 citing authors

#	Article	IF	Citations
1	Generalized localization model of relaxation in glass-forming liquids. Soft Matter, 2012, 8, 11455.	1.2	106
2	Interfacial Dynamic Length Scales in the Glass Transition of a Model Freestanding Polymer Film and Their Connection to Cooperative Motion. Macromolecules, 2013, 46, 9818-9825.	2.2	105
3	Combined Dependence of Nanoconfined T_g on Interfacial Energy and Softness of Confinement. ACS Macro Letters, 2014, 3, 758-762.	2.3	105
4	An Emerging Unified View of Dynamic Interphases in Polymers. Macromolecular Chemistry and Physics, 2016, 217, 137-148.	1.1	87
5	Neural-Network-Biased Genetic Algorithms for Materials Design: Evolutionary Algorithms That Learn. ACS Combinatorial Science, 2017, 19, 96-107.	3.8	86
6	Progress towards a phenomenological picture and theoretical understanding of glassy dynamics and vitrification near interfaces and under nanoconfinement. Journal of Chemical Physics, 2019, 151, 240901.	1.2	84
7	Mobility gradients yield rubbery surfaces on top of polymer glasses. Nature, 2021, 596, 372-376.	13.7	60
8	Nature and interrelations of fast dynamic properties in a coarse-grained glass-forming polymer melt. Soft Matter, 2011, 7, 11010.	1.2	59
9	Nanoconfinement effects on the fragility of glass formation of a model freestanding polymer film. Soft Matter, 2014, 10, 3166.	1.2	56
10	Designing Sequence-Specific Copolymer Compatibilizers Using a Molecular-Dynamics-Simulation-Based Genetic Algorithm. Macromolecules, 2017, 50, 1155-1166.	2.2	54
11	Understanding the Decreased Segmental Dynamics of Supported Thin Polymer Films Reported by Incoherent Neutron Scattering. Macromolecules, 2015, 48, 801-808.	2.2	53
12	The Glass Transition of a Single Macromolecule. Macromolecules, 2016, 49, 7597-7604.	2.2	49
13	Design Rules for Highly Conductive Polymeric Ionic Liquids from Molecular Dynamics Simulations. Macromolecules, 2018, 51, 6630-6644.	2.2	47
14	The relationship between dynamic and pseudo-thermodynamic measures of the glass transition temperature in nanostructured materials. Journal of Chemical Physics, 2017, 146, 203316.	1.2	43
15	Universal localization transition accompanying glass formation: insights from efficient molecular dynamics simulations of diverse supercooled liquids. Soft Matter, 2019, 15, 1223-1242.	1.2	43
16	Glass Formation near Covalently Grafted Interfaces: Ionomers as a Model Case. Macromolecules, 2015, 48, 2313-2323.	2.2	42
17	Tuning Polymer Glass Formation Behavior and Mechanical Properties with Oligomeric Diluents of Varying Stiffness. ACS Macro Letters, 2015, 4, 1134-1138.	2.3	41
18	Antifreeze Hydrogels from Amphiphilic Statistical Copolymers. Chemistry of Materials, 2019, 31, 135-145.	3.2	39

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19	Temperature-Independent Rescaling of the Local Activation Barrier Drives Free Surface Nanoconfinement Effects on Segmental-Scale Translational Dynamics near T_g. ACS Macro Letters, 2018, 7, 1295-1301.	2.3	34
20	Roles of chain stiffness and segmental rattling in ionomer glass formation. Journal of Polymer Science, Part B: Polymer Physics, 2015, 53, 1458-1469.	2.4	32
21	Enhancing heterogenous crystallization resistance in a beadâ€spring polymer model by modifying bond length. Journal of Polymer Science, Part B: Polymer Physics, 2014, 52, 134-140.	2.4	31
22	Nature of dynamic gradients, glass formation, and collective effects in ultrathin freestanding films. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	3.3	30
23	Influence of physical and chemical heterogeneity shape on thin film rupture. Journal of Colloid and Interface Science, 2006, 295, 472-481.	5.0	29
24	Three-Layer Model for the Emergence of Ultrastable Glasses from the Surfaces of Supercooled Liquids. Journal of Physical Chemistry B, 2016, 120, 4861-4865.	1.2	24
25	Heterogeneous Rouse Model Predicts Polymer Chain Translational Normal Mode Decoupling. Macromolecules, 2018, 51, 2887-2898.	2.2	23
26	Does fragility of glass formation determine the strength ofTg-nanoconfinement effects?. Journal of Chemical Physics, 2017, 146, 104902.	1.2	22
27	Spatially Distributed Rheological Properties in Confined Polymers by Noncontact Shear. Journal of Physical Chemistry Letters, 2017, 8, 1229-1234.	2.1	21
28	Correspondence between the rigid amorphous fraction and nanoconfinement effects on glass formation. Journal of Polymer Science, Part B: Polymer Physics, 2017, 55, 907-918.	2.4	21
29	A Model for a Thermally Induced Polymer Coil-to-Globule Transition. Macromolecules, 2008, 41, 5885-5889.	2.2	16
30	Design rules for glass formation from model molecules designed by a neural-network-biased genetic algorithm. Soft Matter, 2019, 15, 7795-7808.	1.2	16
31	Probing the Metrology and Chemistry Dependences of the Onset Condition of Strong â€œNanoconfinementâ€•Effects on Dynamics. Macromolecules, 2020, 53, 4158-4171.	2.2	13
32	HORIZONS FOR DESIGN OF FILLED RUBBER INFORMED BY MOLECULAR DYNAMICS SIMULATION. Rubber Chemistry and Technology, 2017, 90, 238-263.	0.6	12
33	The microscopic origins of stretched exponential relaxation in two model glass-forming liquids as probed by simulations in the isoconfigurational ensemble. Journal of Chemical Physics, 2020, 153, 234503.	1.2	11
34	Scaled Particle Theory for the Coilâ€“Globule Transition of an Isolated Polymer Chain. Macromolecules, 2013, 46, 4691-4697.	2.2	10
35	Poisson ratio mismatch drives low-strain reinforcement in elastomeric nanocomposites. Soft Matter, 2019, 15, 656-670.	1.2	10
36	Do String-like Cooperative Motions Predict Relaxation Times in Glass-Forming Liquids?. Journal of Physical Chemistry B, 2020, 124, 266-276.	1.2	10

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37	Pressure Effects on Polymer Coilâ^'Globule Transitions near an LCST. Macromolecules, 2010, 43, 1571-1574.	2.2	8
38	Hierarchical Shape-Specified Model Polymer Nanoparticles via Copolymer Sequence Control. Macromolecules, 2022, 55, 1957-1969.	2.2	8
39	Response to â€œComment on â€˜Generalized Localization Model of Relaxation in Glass-Forming Liquidsâ€™â€• by A. Ottochian et al.. Soft Matter, 2013, 9, 7892.	1.2	7
40	Forecasting the experimental glass transition from short time relaxation data. Journal of Non-Crystalline Solids, 2020, 544, 120205.	1.5	6
41	Temperature dependence of aging dynamics in highly non-equilibrium model polymer glasses. Journal of Chemical Physics, 2022, 156, 114504.	1.2	6
42	Dynamical Correlations for Statistical Copolymers from High-Throughput Broad-Band Dielectric Spectroscopy. ACS Combinatorial Science, 2019, 21, 276-299.	3.8	5
43	Near-Substrate Gradients in Chain Relaxation and Viscosity in a Model Low-Molecular Weight Polymer. Macromolecules, 2021, 54, 5935-5949.	2.2	5
44	Sequence Effects on the Glass Transition of a Model Copolymer System. Macromolecules, 2022, 55, 5926-5937.	2.2	3
45	Structure, nanomechanics, and dynamics of dispersed surfactantâ€free clay nanocomposite films. Polymer Engineering and Science, 2018, 58, 1285-1295.	1.5	2