James M Caruthers

List of Publications by Year
in descending order

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90 papers	2,507 citations	236925 25 h-index	214800 47 g-index
91 all docs	91 docs citations	91 times ranked	2731 citing authors

#	Article	IF	Citations
1	Structural relaxation of an epoxy resin at temperatures well below T_g*. Polymer Engineering and Science, 2022, 62, 537-552.	3.1	8
2	Kinetics of Ethylene/1-Hexene Copolymerization over a Single-Site Hafnium Bis(phenolate) Catalyst: Insights into Insertion Complexity and Deactivation Pathways. Macromolecules, 2021, 54, 4101-4111.	4.8	6
3	Enhancement of Mechano-Sensitivity for Spiropyran-Linked Poly(dimethylsiloxane) via Solvent Swelling. Macromolecules, 2020, 53, 7954-7961.	4.8	16
4	Linear viscoelastic relaxation in the Î± and Î±+ regions of linear polymers, crosslinked polymers and small molecules. Polymer, 2020, 202, 122745.	3.8	1
5	Rethinking the Analysis of the Linear Viscoelastic Behavior of an Epoxy Polymer near and above the Glass Transition. Macromolecules, 2020, 53, 1867-1880.	4.8	5
6	Temperature and pressure dependence of the alpha relaxation in ortho-terphenyl. Journal of Chemical Physics, 2020, 152, 094504.	3.0	4
7	A Quantitative Model of Super-Arrhenian Behavior in Glass-Forming Polymers. Macromolecules, 2019, 52, 1424-1439.	4.8	11
8	Quantitative Modeling of the Temperature Dependence of the Kinetic Parameters for Zirconium Amine Bis(Phenolate) Catalysts for 1-Hexene Polymerization. ACS Catalysis, 2018, 8, 10407-10418.	11.2	9
9	Mechanistic Insights into Chromium-Catalyzed Ethylene Trimerization. ACS Catalysis, 2018, 8, 6810-6819.	11.2	23
10	Quantitative model of super-Arrhenian behavior in glass forming materials. Physical Review Materials, 2018, 2, .	2.4	17
11	Steric and Solvation Effects on Polymerization Kinetics, Dormancy, and Tacticity of Zr-Salan Catalysts. Organometallics, 2017, 36, 2237-2244.	2.3	10
12	Interaction between Two Active Sites of the Same Catalyst for Macromonomer Enchained Olefin Polymerization. Macromolecules, 2017, 50, 9151-9161.	4.8	5
13	Quantitative Comparative Kinetics of 1-Hexene Polymerization across Group IV Bis-Phenolate Catalysts. ACS Catalysis, 2016, 6, 5138-5145.	11.2	18
14	Porous ternary complex metal oxide nanoparticles converted from core/shell nanoparticles. Nano Research, 2016, 9, 996-1004.	10.4	16
15	Thermo-mechanical signatures of polymeric glasses. , 2016, , 106-178.		3
16	A comparison of constitutive descriptions of the thermo-mechanical behavior of polymeric glasses. , 2016, , 451-536.		3
17	Predictions of Volume Relaxation in Glass Forming Materials Using a Stochastic Constitutive Model. Macromolecules, 2015, 48, 788-800.	4.8	16
18	Mechanistic study of a manganese porphyrin catalyst for on-demand production of chlorine dioxide in water. Journal of Porphyrins and Phthalocyanines, 2015, 19, 492-499.	0.8	5

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19	On Thermodynamic Consistency of a Stochastic Constitutive Model for Glassy Polymers. Industrial & Engineering Chemistry Research, 2015, 54, 10472-10480.	3.7	2
20	Stochastic model prediction of nonlinear creep in glassy polymers. Polymer, 2015, 74, 235-253.	3.8	14
21	Ordered Network of Interconnected SnO₂ Nanoparticles for Excellent Lithiumâ€Ion Storage. Advanced Energy Materials, 2015, 5, 1401289.	19.5	147
22	Mobility evolution during tri-axial deformation of a glassy polymer. Polymer, 2014, 55, 1570-1573.	3.8	8
23	Selective Degenerative Benzyl Group Transfer in Olefin Polymerization. ACS Catalysis, 2014, 4, 1162-1170.	11.2	14
24	Non-Heme Manganese Catalysts for On-Demand Production of Chlorine Dioxide in Water and Under Mild Conditions. Journal of the American Chemical Society, 2014, 136, 3680-3686.	13.7	26
25	Lithium-ion battery electrode inspection using pulse thermography. NDT and E International, 2014, 64, 41-51.	3.7	17
26	Microemulsion-based synthesis and electrochemical evaluation of different nanostructures of LiCoO₂prepared through sacrificial nanowire templates. Nanoscale, 2014, 6, 860-866.	5.6	21
27	Zwitterionic Ring-Opening Polymerization: Models for Kinetics of Cyclic Poly(caprolactone) Synthesis. Macromolecules, 2014, 47, 2955-2963.	4.8	63
28	Effects of Electronic Perturbations on 1-Hexene Polymerization Catalyzed by Zirconium Amine Bisphenolate Complexes. ACS Catalysis, 2014, 4, 2186-2190.	11.2	12
29	Lithium-Ion Battery Electrode Inspection Using Flash Thermography. Conference Proceedings of the Society for Experimental Mechanics, 2014, , 23-29.	0.5	2
30	Comparison of Selected Zirconium and Hafnium Amine Bis(phenolate) Catalysts for 1-Hexene Polymerization. Organometallics, 2013, 32, 4862-4867.	2.3	14
31	Necking in fumed silica filled poly(dimethylsiloxane) and the resulting mechanical properties of the necked material. Polymer, 2013, 54, 1190-1196.	3.8	3
32	Observation of yield in triaxial deformation of glassy polymers. Polymer, 2013, 54, 2821-2833.	3.8	14
33	Prediction of the relationship between the rate of deformation and the rate of stress relaxation in glassy polymers. Polymer, 2013, 54, 6599-6607.	3.8	16
34	Nonlinear stress relaxation in an epoxy glass and its relationship to deformation induced mobility. Polymer, 2013, 54, 3949-3960.	3.8	27
35	The response of a glassy polymer in a loading/unloading deformation: The stress memory experiment. Polymer, 2013, 54, 5993-6002.	3.8	16
36	Synthesis and investigation of thermoelectric and electrochemical properties of porous Ca9Co12O28 nanowires. Journal of Materials Chemistry A, 2013, 1, 11901.	10.3	32

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37	Effects of Pendant Ligand Binding Affinity on Chain Transfer for 1-Hexene Polymerization Catalyzed by Single-Site Zirconium Amine Bis-Phenolate Complexes. Journal of the American Chemical Society, 2013, 135, 6280-6288.	13.7	38
38	Development of a stochastic constitutive model for prediction of postyield softening in glassy polymers. Journal of Rheology, 2013, 57, 949-1002.	2.6	34
39	A critical analysis of the effect of crosslinking on the linear viscoelastic behavior of styreneâ€“butadiene rubber and other elastomers. Journal of Polymer Science, Part B: Polymer Physics, 2013, 51, 687-697.	2.1	6
40	Stochastic Model for Volume Relaxation in Glass Forming Materials: Local Specific Volume Model. Macromolecules, 2012, 45, 7237-7259.	4.8	20
41	Molecular dynamics simulations and experimental studies of the thermomechanical response of an epoxy thermoset polymer. Polymer, 2012, 53, 4222-4230.	3.8	131
42	Structureâ€“Activity Correlation for Relative Chain Initiation to Propagation Rates in Single-Site Olefin Polymerization Catalysis. Organometallics, 2012, 31, 602-618.	2.3	20
43	Kinetic Modeling of 1-Hexene Polymerization Catalyzed by Zr(tBu-ON^{NMe₂}O)Bn₂/B(C₆F₅)₃. Macromolecules, 2012, 45, 4978-4988.	4.8	20
44	Determination of the Catalytic Sites for Zieglerâ€Natta Homoâ€Polymerization from GPC Data. Macromolecular Theory and Simulations, 2011, 20, 31-45.	1.4	6
45	TIME-DEPENDENT MECHANICAL BEHAVIOR OF CARBON BLACK FILLED ELASTOMERS. Rubber Chemistry and Technology, 2011, 84, 296-324.	1.2	11
46	A Kolsky Torsion Bar Technique for Characterization of Dynamic Shear Response of Soft Materials. Conference Proceedings of the Society for Experimental Mechanics, 2011, , 11-12.	0.5	0
47	Deformation induced evolution of mobility in PMMA. Journal of Polymer Science, Part B: Polymer Physics, 2010, 48, 2399-2401.	2.1	27
48	Mechanistic Detail Revealed via Comprehensive Kinetic Modeling of [rac-C₂H₄(1-indenyl)₂ZrMe₂]-Catalyzed 1-Hexene Polymerization. Journal of the American Chemical Society, 2010, 132, 558-566.	13.7	46
49	An Optimizing Compiler for Parallel Chemistry Simulations. International Journal of Parallel Programming, 2009, 37, 127-152.	1.5	4
50	Molecular mobility of poly(methyl methacrylate) glass during uniaxial tensile creep deformation. Journal of Polymer Science, Part B: Polymer Physics, 2009, 47, 1713-1727.	2.1	67
51	Bayesian Framework for Building Kinetic Models of Catalytic Systems. Industrial & Engineering Chemistry Research, 2009, 48, 4768-4790.	3.7	43
52	A parallel levenberg-marquardt algorithm. , 2009, , .		12
53	Modeling of NO oxidation and NOx storage on Pt/BaO/Al2O3 NOx traps. Catalysis Today, 2008, 136, 93-103.	4.4	23
54	Quantitative Effects of Ion Pairing and Sterics on Chain Propagation Kinetics for 1-Hexene Polymerization Catalyzed by Mixed Cpâ€²/ArO Complexes. Organometallics, 2008, 27, 5504-5520.	2.3	25

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55	Theory of nonlinear creep in polymer glasses. Journal of Chemical Physics, 2008, 129, 184904.	3.0	21
56	Population Balance Kinetic Model for Interaction of 2-Bisbenzothiazole-2-2'Disulfide (MBTS) with Sulfur. Rubber Chemistry and Technology, 2008, 81, 671-708.	1.2	7
57	An Optimizing Compiler for Parallel Chemistry Simulations. , 2007, , .		1
58	Structureâ^'Activity Correlation in Titanium Single-Site Olefin Polymerization Catalysts Containing Mixed Cyclopentadienyl/Aryloxide Ligation. Journal of the American Chemical Society, 2007, 129, 3776-3777.	13.7	51
59	Diverse Pathways of Activation and Deactivation of Half-Sandwich Aryloxide Titanium Polymerization Catalysts. Organometallics, 2006, 25, 214-220.	2.3	48
60	Inhibitive Chain Transfer to Ligand in the ATRP ofn-Butyl Acrylate. Macromolecules, 2006, 39, 4680-4689.	4.8	21
61	A systematic approach for automated reaction network generation. Computer Aided Chemical Engineering, 2006, 21, 973-978.	0.5	2
62	Microkinetic modeling of propane aromatization over HZSM-5. Journal of Catalysis, 2005, 235, 35-51.	6.2	52
63	A thermodynamically consistent, nonlinear viscoelastic approach for modeling glassy polymers. Polymer, 2004, 45, 4577-4597.	3.8	135
64	Extensive validation of a thermodynamically consistent, nonlinear viscoelastic model for glassy polymers. Polymer, 2004, 45, 4599-4621.	3.8	95
65	A hybrid genetic algorithm for efficient parameter estimation of large kinetic models. Computers and Chemical Engineering, 2004, 28, 2569-2581.	3.8	115
66	An Intelligent System for Reaction Kinetic Modeling and Catalyst Design. Industrial & Engineering Chemistry Research, 2004, 43, 3484-3512.	3.7	64
67	Sulfur Vulcanization of Natural Rubber for Benzothiazole Accelerated Formulations: From Reaction Mechanisms to a Rational Kinetic Model. Rubber Chemistry and Technology, 2003, 76, 592-693.	1.2	199
68	Design of fuel additives using neural networks and evolutionary algorithms. AICHE Journal, 2001, 47, 1387-1406.	3.6	42
69	Integrated product engineering: a hybrid evolutionary framework. Computers and Chemical Engineering, 2000, 24, 685-691.	3.8	14
70	Chain-of-rotators equation of state for polar and non-polar substances and mixtures. Fluid Phase Equilibria, 1998, 142, 83-100.	2.5	5
71	Heat capacity of polymer melts from the polymer chain-of-rotators equation of state. Journal of Applied Polymer Science, 1998, 67, 841-848.	2.6	8
72	Vaporâ^'Liquid Equilibrium of Polymer + Solvent Mixtures by the Chain-of-Rotators Equation of State. Industrial & Engineering Chemistry Research, 1998, 37, 3142-3150.	3.7	5

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73	Cure Reaction Pathways of Bismaleimide Polymers:Â A Solid-State15N NMR Investigation. Macromolecules, 1998, 31, 6776-6782.	4.8	41
74	Statistical-mechanically exact simulation of polymer conformation in an external field. Journal of Chemical Physics, 1997, 107, 5929-5944.	3.0	5
75	Thermodynamic constitutive equations for materials with memory on a material time scale. Journal of Rheology, 1996, 40, 69-106.	2.6	88
76	A Mixing Rule To Incorporate Solution Model into Equation of State. Industrial & Engineering Chemistry Research, 1996, 35, 269-277.	3.7	12
77	Genetic Algorithmic Approach for Computer-Aided Molecular Design. ACS Symposium Series, 1995, , 396-414.	0.5	13
78	Evolutionary Design of Molecules with Desired Properties Using the Genetic Algorithm. Journal of Chemical Information and Computer Sciences, 1995, 35, 188-195.	2.8	114
79	PVT properties of dodecane/polystyrene systems. Journal of Polymer Science, Part B: Polymer Physics, 1994, 32, 1593-1606.	2.1	4
80	Self- and mutual-diffusion coefficients in the dodecane/polystyrene system. Journal of Applied Polymer Science, 1994, 51, 661-668.	2.6	5
81	Spectroturbidimetry theory for determining orientation distributions of spheroidal particles in the Rayleighâ€“Debyeâ€“Gans and Rayleigh scattering regimes. Journal of Chemical Physics, 1994, 100, 2422-2428.	3.0	2
82	Viscoelastic properties of dodecane/polystyrene systems. Polymer, 1993, 34, 3638-3647.	3.8	6
83	Penetrant transport in crosslinked polystyrene. Macromolecules, 1993, 26, 1841-1847.	4.8	76
84	Theory and measurements of orientation distributions of spheroidal particles by Rayleighâ€“Debyeâ€“Gans light scattering. Journal of Chemical Physics, 1993, 98, 3600-3611.	3.0	4
85	Synthesis of long chain fatty acids esterified onto cellulose via the vacuum-acid chloride process. Industrial & Engineering Chemistry Research, 1992, 31, 2647-2651.	3.7	55
86	Dynamic mechanical properties of polymer-fluid systems: characterization of poly(2-hydroxyethyl) Tj ETQq0 0 0 rgBT /Overlock 10 Tf 50 32, 3340-3353.	3.8	19
87	Predictions of a Thermoviscoelastic Constitutive Equation for Specific Volume Relaxation in the Glass Transition Region. Materials Research Society Symposia Proceedings, 1990, 215, 213.	0.1	0
88	Light scattering theory from monodisperse spheroidal particles in the Rayleighâ€“Debyeâ€“Gans regime. Journal of Chemical Physics, 1990, 92, 140-156.	3.0	10
89	Light scattering theory from dispersions of nonspherical Rayleigh particles. Journal of Chemical Physics, 1985, 83, 1531-1545.	3.0	7
90	A systematic procedure for estimating the orientation distribution for nonspherical Rayleigh particles. Journal of Chemical Physics, 1985, 83, 6371-6384.	3.0	4