

James M Caruthers

List of Publications by Year in descending order

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90
papers

2,507
citations

236925

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214800

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91
all docs

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docs citations

91
times ranked

2731
citing authors

#	ARTICLE	IF	CITATIONS
1	Sulfur Vulcanization of Natural Rubber for Benzothiazole Accelerated Formulations: From Reaction Mechanisms to a Rational Kinetic Model. <i>Rubber Chemistry and Technology</i> , 2003, 76, 592-693.	1.2	199
2	Ordered Network of Interconnected SnO ₂ Nanoparticles for Excellent Lithium-Ion Storage. <i>Advanced Energy Materials</i> , 2015, 5, 1401289.	19.5	147
3	A thermodynamically consistent, nonlinear viscoelastic approach for modeling glassy polymers. <i>Polymer</i> , 2004, 45, 4577-4597.	3.8	135
4	Molecular dynamics simulations and experimental studies of the thermomechanical response of an epoxy thermoset polymer. <i>Polymer</i> , 2012, 53, 4222-4230.	3.8	131
5	A hybrid genetic algorithm for efficient parameter estimation of large kinetic models. <i>Computers and Chemical Engineering</i> , 2004, 28, 2569-2581.	3.8	115
6	Evolutionary Design of Molecules with Desired Properties Using the Genetic Algorithm. <i>Journal of Chemical Information and Computer Sciences</i> , 1995, 35, 188-195.	2.8	114
7	Extensive validation of a thermodynamically consistent, nonlinear viscoelastic model for glassy polymers. <i>Polymer</i> , 2004, 45, 4599-4621.	3.8	95
8	Thermodynamic constitutive equations for materials with memory on a material time scale. <i>Journal of Rheology</i> , 1996, 40, 69-106.	2.6	88
9	Penetrant transport in crosslinked polystyrene. <i>Macromolecules</i> , 1993, 26, 1841-1847.	4.8	76
10	Molecular mobility of poly(methyl methacrylate) glass during uniaxial tensile creep deformation. <i>Journal of Polymer Science, Part B: Polymer Physics</i> , 2009, 47, 1713-1727.	2.1	67
11	An Intelligent System for Reaction Kinetic Modeling and Catalyst Design. <i>Industrial & Engineering Chemistry Research</i> , 2004, 43, 3484-3512.	3.7	64
12	Zwitterionic Ring-Opening Polymerization: Models for Kinetics of Cyclic Poly(caprolactone) Synthesis. <i>Macromolecules</i> , 2014, 47, 2955-2963.	4.8	63
13	Synthesis of long chain fatty acids esterified onto cellulose via the vacuum-acid chloride process. <i>Industrial & Engineering Chemistry Research</i> , 1992, 31, 2647-2651.	3.7	55
14	Microkinetic modeling of propane aromatization over HZSM-5. <i>Journal of Catalysis</i> , 2005, 235, 35-51.	6.2	52
15	Structure-Activity Correlation in Titanium Single-Site Olefin Polymerization Catalysts Containing Mixed Cyclopentadienyl/Aryloxide Ligation. <i>Journal of the American Chemical Society</i> , 2007, 129, 3776-3777.	13.7	51
16	Diverse Pathways of Activation and Deactivation of Half-Sandwich Aryloxide Titanium Polymerization Catalysts. <i>Organometallics</i> , 2006, 25, 214-220.	2.3	48
17	Mechanistic Detail Revealed via Comprehensive Kinetic Modeling of [<i>rac</i>]-C ₂ H ₄ (1-indenyl) ₂ ZrMe ₂ -Catalyzed 1-Hexene Polymerization. <i>Journal of the American Chemical Society</i> , 2010, 132, 558-566.	13.7	46
18	Bayesian Framework for Building Kinetic Models of Catalytic Systems. <i>Industrial & Engineering Chemistry Research</i> , 2009, 48, 4768-4790.	3.7	43

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19	Design of fuel additives using neural networks and evolutionary algorithms. <i>AICHE Journal</i> , 2001, 47, 1387-1406.	3.6	42
20	Cure Reaction Pathways of Bismaleimide Polymers: A Solid-State ¹⁵ N NMR Investigation. <i>Macromolecules</i> , 1998, 31, 6776-6782.	4.8	41
21	Effects of Pendant Ligand Binding Affinity on Chain Transfer for 1-Hexene Polymerization Catalyzed by Single-Site Zirconium Amine Bis-Phenolate Complexes. <i>Journal of the American Chemical Society</i> , 2013, 135, 6280-6288.	13.7	38
22	Development of a stochastic constitutive model for prediction of postyield softening in glassy polymers. <i>Journal of Rheology</i> , 2013, 57, 949-1002.	2.6	34
23	Synthesis and investigation of thermoelectric and electrochemical properties of porous Ca ₉ Co ₁₂ O ₂₈ nanowires. <i>Journal of Materials Chemistry A</i> , 2013, 1, 11901.	10.3	32
24	Deformation induced evolution of mobility in PMMA. <i>Journal of Polymer Science, Part B: Polymer Physics</i> , 2010, 48, 2399-2401.	2.1	27
25	Nonlinear stress relaxation in an epoxy glass and its relationship to deformation induced mobility. <i>Polymer</i> , 2013, 54, 3949-3960.	3.8	27
26	Non-Heme Manganese Catalysts for On-Demand Production of Chlorine Dioxide in Water and Under Mild Conditions. <i>Journal of the American Chemical Society</i> , 2014, 136, 3680-3686.	13.7	26
27	Quantitative Effects of Ion Pairing and Sterics on Chain Propagation Kinetics for 1-Hexene Polymerization Catalyzed by Mixed Cp ² /ArO Complexes. <i>Organometallics</i> , 2008, 27, 5504-5520.	2.3	25
28	Modeling of NO oxidation and NO _x storage on Pt/BaO/Al ₂ O ₃ NO _x traps. <i>Catalysis Today</i> , 2008, 136, 93-103.	4.4	23
29	Mechanistic Insights into Chromium-Catalyzed Ethylene Trimerization. <i>ACS Catalysis</i> , 2018, 8, 6810-6819.	11.2	23
30	Inhibitive Chain Transfer to Ligand in the ATRP of n-Butyl Acrylate. <i>Macromolecules</i> , 2006, 39, 4680-4689.	4.8	21
31	Theory of nonlinear creep in polymer glasses. <i>Journal of Chemical Physics</i> , 2008, 129, 184904.	3.0	21
32	Microemulsion-based synthesis and electrochemical evaluation of different nanostructures of LiCoO ₂ prepared through sacrificial nanowire templates. <i>Nanoscale</i> , 2014, 6, 860-866.	5.6	21
33	Stochastic Model for Volume Relaxation in Glass Forming Materials: Local Specific Volume Model. <i>Macromolecules</i> , 2012, 45, 7237-7259.	4.8	20
34	Structure-Activity Correlation for Relative Chain Initiation to Propagation Rates in Single-Site Olefin Polymerization Catalysis. <i>Organometallics</i> , 2012, 31, 602-618.	2.3	20
35	Kinetic Modeling of 1-Hexene Polymerization Catalyzed by Zr(<i>i</i> -Bu) ₂ (NMe ₂) ₂ O(Bn) ₂ /B(C ₆ F ₅) ₃ . <i>Macromolecules</i> , 2012, 45, 4978-4988.		20
36	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

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37	Quantitative Comparative Kinetics of 1-Hexene Polymerization across Group IV Bis-Phenolate Catalysts. ACS Catalysis, 2016, 6, 5138-5145.	11.2	18
38	Lithium-ion battery electrode inspection using pulse thermography. NDT and E International, 2014, 64, 41-51.	3.7	17
39	Quantitative model of super-Arrhenian behavior in glass forming materials. Physical Review Materials, 2018, 2, .	2.4	17
40	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
41	The response of a glassy polymer in a loading/unloading deformation: The stress memory experiment. Polymer, 2013, 54, 5993-6002.	3.8	16
42	Predictions of Volume Relaxation in Glass Forming Materials Using a Stochastic Constitutive Model. Macromolecules, 2015, 48, 788-800.	4.8	16
43	Porous ternary complex metal oxide nanoparticles converted from core/shell nanoparticles. Nano Research, 2016, 9, 996-1004.	10.4	16
44	Enhancement of Mechano-Sensitivity for Spiropyran-Linked Poly(dimethylsiloxane) via Solvent Swelling. Macromolecules, 2020, 53, 7954-7961.	4.8	16
45	Integrated product engineering: a hybrid evolutionary framework. Computers and Chemical Engineering, 2000, 24, 685-691.	3.8	14
46	Comparison of Selected Zirconium and Hafnium Amine Bis(phenolate) Catalysts for 1-Hexene Polymerization. Organometallics, 2013, 32, 4862-4867.	2.3	14
47	Observation of yield in triaxial deformation of glassy polymers. Polymer, 2013, 54, 2821-2833.	3.8	14
48	Selective Degenerative Benzyl Group Transfer in Olefin Polymerization. ACS Catalysis, 2014, 4, 1162-1170.	11.2	14
49	Stochastic model prediction of nonlinear creep in glassy polymers. Polymer, 2015, 74, 235-253.	3.8	14
50	Genetic Algorithmic Approach for Computer-Aided Molecular Design. ACS Symposium Series, 1995, , 396-414.	0.5	13
51	A Mixing Rule To Incorporate Solution Model into Equation of State. Industrial & Engineering Chemistry Research, 1996, 35, 269-277.	3.7	12
52	A parallel levenberg-marquardt algorithm. , 2009, , .		12
53	Effects of Electronic Perturbations on 1-Hexene Polymerization Catalyzed by Zirconium Amine Bisphenolate Complexes. ACS Catalysis, 2014, 4, 2186-2190.	11.2	12
54	TIME-DEPENDENT MECHANICAL BEHAVIOR OF CARBON BLACK FILLED ELASTOMERS. Rubber Chemistry and Technology, 2011, 84, 296-324.	1.2	11

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55	A Quantitative Model of Super-Arrhenian Behavior in Glass-Forming Polymers. <i>Macromolecules</i> , 2019, 52, 1424-1439.	4.8	11
56	Light scattering theory from monodisperse spheroidal particles in the Rayleigh-Debye-Gans regime. <i>Journal of Chemical Physics</i> , 1990, 92, 140-156.	3.0	10
57	Steric and Solvation Effects on Polymerization Kinetics, Dormancy, and Tacticity of Zr-Salan Catalysts. <i>Organometallics</i> , 2017, 36, 2237-2244.	2.3	10
58	Quantitative Modeling of the Temperature Dependence of the Kinetic Parameters for Zirconium Amine Bis(Phenolate) Catalysts for 1-Hexene Polymerization. <i>ACS Catalysis</i> , 2018, 8, 10407-10418.	11.2	9
59	Heat capacity of polymer melts from the polymer chain-of-rotators equation of state. <i>Journal of Applied Polymer Science</i> , 1998, 67, 841-848.	2.6	8
60	Mobility evolution during tri-axial deformation of a glassy polymer. <i>Polymer</i> , 2014, 55, 1570-1573.	3.8	8
61	Structural relaxation of an epoxy resin at temperatures well below T_g^* . <i>Polymer Engineering and Science</i> , 2022, 62, 537-552.	3.1	8
62	Light scattering theory from dispersions of nonspherical Rayleigh particles. <i>Journal of Chemical Physics</i> , 1985, 83, 1531-1545.	3.0	7
63	Population Balance Kinetic Model for Interaction of 2-Bisbenzothiazole-2'-Disulfide (MBTS) with Sulfur. <i>Rubber Chemistry and Technology</i> , 2008, 81, 671-708.	1.2	7
64	Viscoelastic properties of dodecane/polystyrene systems. <i>Polymer</i> , 1993, 34, 3638-3647.	3.8	6
65	Determination of the Catalytic Sites for Ziegler-Natta Homo-Polymerization from GPC Data. <i>Macromolecular Theory and Simulations</i> , 2011, 20, 31-45.	1.4	6
66	A critical analysis of the effect of crosslinking on the linear viscoelastic behavior of styrene-butadiene rubber and other elastomers. <i>Journal of Polymer Science, Part B: Polymer Physics</i> , 2013, 51, 687-697.	2.1	6
67	Kinetics of Ethylene/1-Hexene Copolymerization over a Single-Site Hafnium Bis(phenolate) Catalyst: Insights into Insertion Complexity and Deactivation Pathways. <i>Macromolecules</i> , 2021, 54, 4101-4111.	4.8	6
68	Self- and mutual-diffusion coefficients in the dodecane/polystyrene system. <i>Journal of Applied Polymer Science</i> , 1994, 51, 661-668.	2.6	5
69	Statistical-mechanically exact simulation of polymer conformation in an external field. <i>Journal of Chemical Physics</i> , 1997, 107, 5929-5944.	3.0	5
70	Chain-of-rotators equation of state for polar and non-polar substances and mixtures. <i>Fluid Phase Equilibria</i> , 1998, 142, 83-100.	2.5	5
71	Vapor-Liquid Equilibrium of Polymer + Solvent Mixtures by the Chain-of-Rotators Equation of State. <i>Industrial & Engineering Chemistry Research</i> , 1998, 37, 3142-3150.	3.7	5
72	Mechanistic study of a manganese porphyrin catalyst for on-demand production of chlorine dioxide in water. <i>Journal of Porphyrins and Phthalocyanines</i> , 2015, 19, 492-499.	0.8	5

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73	Interaction between Two Active Sites of the Same Catalyst for Macromonomer Enchained Olefin Polymerization. <i>Macromolecules</i> , 2017, 50, 9151-9161.	4.8	5
74	Rethinking the Analysis of the Linear Viscoelastic Behavior of an Epoxy Polymer near and above the Glass Transition. <i>Macromolecules</i> , 2020, 53, 1867-1880.	4.8	5
75	A systematic procedure for estimating the orientation distribution for nonspherical Rayleigh particles. <i>Journal of Chemical Physics</i> , 1985, 83, 6371-6384.	3.0	4
76	Theory and measurements of orientation distributions of spheroidal particles by Rayleigh-Debye-Gans light scattering. <i>Journal of Chemical Physics</i> , 1993, 98, 3600-3611.	3.0	4
77	PVT properties of dodecane/polystyrene systems. <i>Journal of Polymer Science, Part B: Polymer Physics</i> , 1994, 32, 1593-1606.	2.1	4
78	An Optimizing Compiler for Parallel Chemistry Simulations. <i>International Journal of Parallel Programming</i> , 2009, 37, 127-152.	1.5	4
79	Temperature and pressure dependence of the alpha relaxation in ortho-terphenyl. <i>Journal of Chemical Physics</i> , 2020, 152, 094504.	3.0	4
80	Necking in fumed silica filled poly(dimethylsiloxane) and the resulting mechanical properties of the necked material. <i>Polymer</i> , 2013, 54, 1190-1196.	3.8	3
81	Thermo-mechanical signatures of polymeric glasses. , 2016, , 106-178.		3
82	A comparison of constitutive descriptions of the thermo-mechanical behavior of polymeric glasses. , 2016, , 451-536.		3
83	Spectroturbidimetry theory for determining orientation distributions of spheroidal particles in the Rayleigh-Debye-Gans and Rayleigh scattering regimes. <i>Journal of Chemical Physics</i> , 1994, 100, 2422-2428.	3.0	2
84	A systematic approach for automated reaction network generation. <i>Computer Aided Chemical Engineering</i> , 2006, 21, 973-978.	0.5	2
85	On Thermodynamic Consistency of a Stochastic Constitutive Model for Glassy Polymers. <i>Industrial & Engineering Chemistry Research</i> , 2015, 54, 10472-10480.	3.7	2
86	Lithium-Ion Battery Electrode Inspection Using Flash Thermography. <i>Conference Proceedings of the Society for Experimental Mechanics</i> , 2014, , 23-29.	0.5	2
87	An Optimizing Compiler for Parallel Chemistry Simulations. , 2007, , .		1
88	Linear viscoelastic relaxation in the $\hat{1}\pm$ and $\hat{1}\pm\pm$ regions of linear polymers, crosslinked polymers and small molecules. <i>Polymer</i> , 2020, 202, 122745.	3.8	1
89	Predictions of a Thermoviscoelastic Constitutive Equation for Specific Volume Relaxation in the Glass Transition Region. <i>Materials Research Society Symposia Proceedings</i> , 1990, 215, 213.	0.1	0
90	A Kolsky Torsion Bar Technique for Characterization of Dynamic Shear Response of Soft Materials. <i>Conference Proceedings of the Society for Experimental Mechanics</i> , 2011, , 11-12.	0.5	0