Carlton Grant Willson

List of Publications by Year
in descending order

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89	4,392	31	65
papers	citations	h-index	g-index
		147566	106150

91	91	91	3614
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Block Copolymer Lithography. Macromolecules, 2014, 47, 2-12.	2.2	537
2	Chemical amplification in the design of dry developing resist materials. Polymer Engineering and Science, 1983, 23, 1012-1018.	1.5	475
3	Polarity-Switching Top Coats Enable Orientation of Subâ€“10-nm Block Copolymer Domains. Science, 2012, 338, 775-779.	6.0	354
4	Chemical Amplification in High-Resolution Imaging Systems. Accounts of Chemical Research, 1994, 27, 151-158.	7.6	244
5	Oligosaccharide/Silicon-Containing Block Copolymers with 5 nm Features for Lithographic Applications. ACS Nano, 2012, 6, 3424-3433.	7.3	194
6	Design of highâ€Ï‡ block copolymers for lithography. Journal of Polymer Science Part A, 2015, 53, 344-352.	2.5	136
7	Nanoimprint Lithography Materials Development for Semiconductor Device Fabrication. Annual Review of Materials Research, 2009, 39, 155-180.	4.3	132
8	Degradable Cross-Linkers and Strippable Imaging Materials for Step-and-Flash Imprint Lithography. Macromolecules, 2008, 41, 719-726.	2.2	124
9	Thin Film Self-Assembly of Poly(trimethylsilylstyrene-<i>b</i>-<scp>d</scp>,<scp>l</scp>-lactide) with Sub-10 nm Domains. Macromolecules, 2012, 45, 8722-8728.	2.2	120
10	The Mechanism of Phenolic Polymer Dissolution:â€‰ A New Perspective. Macromolecules, 1997, 30, 4656-4664.	2.2	117
11	Interfacial Design for Block Copolymer Thin Films. Chemistry of Materials, 2014, 26, 1471-1479.	3.2	108
12	Directed Self-Assembly and Pattern Transfer of Five Nanometer Block Copolymer Lamellae. ACS Nano, 2017, 11, 7656-7665.	7.3	103
13	Acid catalyst mobility in resist resins. Journal of Vacuum Science & Technology an Official Journal of the American Vacuum Society B, Microelectronics Processing and Phenomena, 2002, 20, 2946.	1.6	93
14	Materials for step and flash imprint lithography (S-FILÂ®). Journal of Materials Chemistry, 2007, 17, 3575.	6.7	78
15	Direct Measurement of the Reaction Front in Chemically Amplified Photoresists. Science, 2002, 297, 372-375.	6.0	77
16	Nano Day: Celebrating the Next Decade of Nanoscience and Nanotechnology. ACS Nano, 2016, 10, 9093-9103.	7.3	77
17	Directed Self-Assembly of Silicon-Containing Block Copolymer Thin Films. ACS Applied Materials & Interfaces, 2015, 7, 3323-3328.	4.0	68
18	Double-Patterned Sidewall Directed Self-Assembly and Pattern Transfer of Sub-10 nm PTMSS-<i>b</i>-PMOST. ACS Applied Materials & Interfaces, 2015, 7, 13476-13483.	4.0	60

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19	Metal-Catalyzed Vinyl Addition Polymers for 157 nm Resist Applications. 2. Fluorinated Norbornenes:Â Synthesis, Polymerization, and Initial Imaging Results. Macromolecules, 2002, 35, 6539-6549.	2.2	59
20	Consequences of Surface Neutralization in Diblock Copolymer Thin Films. ACS Nano, 2013, 7, 9905-9919.	7.3	59
21	Coaggregation of Bâ˘'C and Dâ˘'C Diblock Copolymers with H-Bonding C Blocks in Block-Selective Solvents. Macromolecules, 2006, 39, 1906-1912.	2.2	55
22	Metal-Catalyzed Addition Polymers for 157 nm Resist Applications. Synthesis and Polymerization of Partially Fluorinated, Ester-Functionalized Tricyclo[4.2.1.02,5]non-7-enes. Macromolecules, 2003, 36, 1534-1542.	2.2	53
23	Polymeric Cross-Linked Surface Treatments for Controlling Block Copolymer Orientation in Thin Films. Langmuir, 2011, 27, 2000-2006.	1.6	53
24	Cracking of Polycrystalline Graphene on Copper under Tension. ACS Nano, 2016, 10, 9616-9625.	7.3	53
25	Direct Observation of Poly(Methyl Methacrylate) Removal from a Graphene Surface. Chemistry of Materials, 2017, 29, 2033-2039.	3.2	41
26	Design of Reversible Cross-Linkers for Step and Flash Imprint Lithography Imprint Resists. ACS Nano, 2007, 1, 307-312.	7.3	40
27	Spatial distribution of reaction products in positive tone chemically amplified resists. Journal of Vacuum Science & Technology an Official Journal of the American Vacuum Society B, Microelectronics Processing and Phenomena, 2002, 20, 185.	1.6	39
28	Structure, Stability, and Reorganization of 0.5 <i>L</i>₀ Topography in Block Copolymer Thin Films. ACS Nano, 2016, 10, 10152-10160.	7.3	38
29	Impact of exposure induced refractive index changes of photoresists on the photolithographic process. Journal of Applied Physics, 2001, 89, 8163-8168.	1.1	37
30	Kinetic parameters for step and flash imprint lithography photopolymerization. AICHE Journal, 2006, 52, 777-784.	1.8	34
31	Experimental and Modeling Study of Domain Orientation in Confined Block Copolymer Thin Films. Macromolecules, 2016, 49, 308-316.	2.2	34
32	Characterizing the Interface Scaling of High Ï‡ Block Copolymers near the Orderâ€"Disorder Transition. Macromolecules, 2018, 51, 173-180.	2.2	34
33	157 nm resist materials: Progress report. Journal of Vacuum Science & Technology an Official Journal of the American Vacuum Society B, Microelectronics Processing and Phenomena, 2000, 18, 3396.	1.6	30
34	Photopatternable Interfaces for Block Copolymer Lithography. ACS Macro Letters, 2014, 3, 824-828.	2.3	28
35	A Hybrid Chemo-/Grapho-Epitaxial Alignment Strategy for Defect Reduction in Sub-10 nm Directed Self-Assembly of Silicon-Containing Block Copolymers. Chemistry of Materials, 2016, 28, 8951-8961.	3.2	28
36	Molecular model of phenolic polymer dissolution in photolithography. Journal of Polymer Science, Part B: Polymer Physics, 1999, 37, 2103-2113.	2.4	27

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37	Organic imaging materials: a view of the future. Journal of Physical Organic Chemistry, 2000, 13, 767-774.	0.9	27
38	High-aspect ratio polymeric pillar arrays formed via electrohydrodynamic patterning. Journal of Materials Science, 2008, 43, 117-122.	1.7	26
39	Development of imprint materials for the Step and Flash Imprint Lithography process. , 2004, , .		25
40	Ordering poly(trimethylsilyl styreneâ€<i>block</i>â€<scp><i>D</i>,<i>L</i></scp>â€lactide) block copolymers in thin films by solvent annealing using a mixture of domainâ€selective solvents. Journal of Polymer Science, Part B: Polymer Physics, 2014, 52, 36-45.	2.4	25
41	High Index Resist for 193 nm Immersion Lithography. Macromolecules, 2008, 41, 5674-5680.	2.2	23
42	Effect of Ring Functionalization on the Reaction Temperature of Benzocyclobutene Thermoset Polymers. Macromolecules, 2016, 49, 3706-3715.	2.2	23
43	Photopatterning of Block Copolymer Thin Films. ACS Macro Letters, 2016, 5, 460-465.	2.3	23
44	Nanoscience and Nanotechnology Impacting Diverse Fields of Science, Engineering, and Medicine. ACS Nano, 2016, 10, 10615-10617.	7.3	22
45	Pattern Transfer of Sub-10 nm Features via Tin-Containing Block Copolymers. ACS Macro Letters, 2016, 5, 391-395.	2.3	22
46	Directed self assembly of block copolymers using chemical patterns with sidewall guiding lines, backfilled with random copolymer brushes. Soft Matter, 2015, 11, 9107-9114.	1.2	17
47	Experimental Techniques for Detection of Components Extracted from Model 193 nm Immersion Lithography Photoresists. Chemistry of Materials, 2005, 17, 4194-4203.	3.2	16
48	Study of fluorinated silicon-based resist material and photoreactive underlayer for defect reduction in step and repeat ultraviolet nanoimprint lithography. Micro and Nano Letters, 2011, 6, 422.	0.6	16
49	Synthesis and thinâ€film orientation of poly(styreneâ€<i>block</i>â€trimethylsilylisoprene). Journal of Polymer Science Part A, 2013, 51, 290-297.	2.5	16
50	Ultraviolet curable branched siloxanes as low-k dielectrics for imprint lithography. Journal of Vacuum Science and Technology B:Nanotechnology and Microelectronics, 2013, 31, .	0.6	16
51	Synthesis of Unzipping Polyester and a Study of its Photochemistry. Journal of the American Chemical Society, 2019, 141, 14736-14741.	6.6	16
52	Block Copolymer Orientation Control Using a Top-Coat Surface Treatment. Journal of Photopolymer Science and Technology = [Fotoporima Konwakai Shi], 2012, 25, 125-130.	0.1	15
53	Electrostatic effects during dissolution of positive tone photoresists. Journal of Vacuum Science & Technology an Official Journal of the American Vacuum Society B, Microelectronics Processing and Phenomena, 2002, 20, 2913.	1.6	12
54	Recent advances in resists for 157 nm microlithography. Journal of Vacuum Science & Technology an Official Journal of the American Vacuum Society B, Microelectronics Processing and Phenomena, 2002, 20, 531.	1.6	12

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55	Photoinitiated ringâ€opening metathesis polymerization. Journal of Polymer Science Part A, 2019, 57, 1791-1795.	2.5	12
56	Strategies for Increasing the Rate of Defect Annihilation in the Directed Self-Assembly of High-Ï‡ Block Copolymers. ACS Applied Materials & Interfaces, 2019, 11, 48419-48427.	4.0	11
57	Poling and crosslinking processes in NLO polymers. Journal of Polymer Science Part A, 2014, 52, 2769-2775.	2.5	10
58	Thick film positive photoresist: Development and resolution enhancement technique. Journal of Vacuum Science & Technology an Official Journal of the American Vacuum Society B, Microelectronics Processing and Phenomena, 1995, 13, 3000.	1.6	8
59	Mechanistic understanding of line-end shortening. , 2001, , .		8
60	CORRELATION BETWEEN SIMULATION AND EXPERIMENT USING UV CURABLE GAP FILL MATERIALS FOR GLOBAL PLANARIZATION. International Journal of Nanoscience, 2009, 08, 103-106.	0.4	8
61	Interactions between plasma and block copolymers used in directed self-assembly patterning. Proceedings of SPIE, 2016, , .	0.8	8
62	Formation of deprotected fuzzy blobs in chemically amplified resists. Journal of Polymer Science, Part B: Polymer Physics, 2004, 42, 3063-3069.	2.4	7
63	Spatial Control of the Self-assembled Block Copolymer Domain Orientation and Alignment on Photopatterned Surfaces. ACS Applied Materials & Interfaces, 2020, 12, 23399-23409.	4.0	7
64	An Automated Statistical Process Control Study of Inline Mixing Using Spectrophotometric Detection. Journal of Chemical Education, 2006, 83, 110.	1.1	6
65	Mesoscale modeling: a study of particle generation and line-edge roughness. Journal of Micro/Nanolithography, MEMS, and MOEMS, 2014, 13, 013012.	1.0	6
66	A Study of Tin-containing Block Copolymers. Journal of Photopolymer Science and Technology = [Fotoporima Konwakai Shi], 2014, 27, 445-448.	0.1	5
67	Photochemical Reactions for Replicating and Aligning Block Copolymer Thin Film Patterns. Journal of Photopolymer Science and Technology = [Fotoporima Konwakai Shi], 2014, 27, 435-440.	0.1	5
68	Thin Film Block Copolymer Assembly in Mixtures of Highly Selective Solvents. Journal of Photopolymer Science and Technology = [Fotoporima Konwakai Shi], 2013, 26, 45-47.	0.1	4
69	Polarity-switching Top Coats for Silicon-containing Block Copolymer Orientation Control. Journal of Photopolymer Science and Technology = [Fotoporima Konwakai Shi], 2013, 26, 223-224.	0.1	4
70	Planarizing material for reverse-tone step and flash imprint lithography. Journal of Micro/Nanolithography, MEMS, and MOEMS, 2014, 13, 031302.	1.0	4
71	Progress Report on the Generation of Polyfunctional Microscale Particles for Programmed Self-Assembly. Chemistry of Materials, 2014, 26, 1457-1462.	3.2	4
72	Interfacial Layers with Photoswitching Surface Energy for Block Copolymer Alignment and Directed Self-Assembly. Journal of Photopolymer Science and Technology = [Fotoporima Konwakai Shi], 2015, 28, 611-615.	0.1	4

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73	Synthesis and Characterization of Si-containing Block Co-polymers with Resolution beyond 10 nm. Journal of Photopolymer Science and Technology = [Fotoporima Konwakai Shi], 2016, 29, 701-704.	0.1	4
74	Determination of residual casting solvent concentration gradients in resist films by a â€œhalt developmentâ€• technique. Journal of Vacuum Science & Technology an Official Journal of the American Vacuum Society B, Microelectronics Processing and Phenomena, 2001, 19, 136.	1.6	3
75	Influence of topographically patterned angled guidelines on directed self-assembly of block copolymers. Physical Review E, 2017, 96, 052501.	0.8	3
76	In-plane Thermal Conductivity Measurement with Nanosecond Grating Imaging Technique. Nanoscale and Microscale Thermophysical Engineering, 2018, 22, 83-96.	1.4	3
77	Design and Preliminary Studies of Environmentally Enhanced Water-Castable, Water-Developable Positive Tone Resists: Model and Feasibility Studies. ACS Symposium Series, 1998, , 262-275.	0.5	2
78	Directly patternable benzocyclobutene and methacrylate silsesquioxanes for microelectronics packaging. Journal of the Ceramic Society of Japan, 2015, 123, 800-804.	0.5	2
79	High-χ, Si-Containing Block Copolymers and Process Strategies for Directing Their Self-Assembly. Journal of Photopolymer Science and Technology = [Fotoporima Konwakai Shi], 2017, 30, 187-190.	0.1	2
80	Unusual Thermal Properties of Certain Poly(3,5-disubstituted styrene)s. Macromolecules, 2020, 53, 5504-5511.	2.2	2
81	Defect mitigation in sub-20nm patterning with high-chi, silicon-containing block copolymers. , 2019, , .		2
82	Deprotection Kinetics of Alicyclic Polymer Resist Systems Designed for ArF (193 nm) Lithography. ACS Symposium Series, 1998, , 174-190.	0.5	1
83	Modeling of Self-Assembly Dynamics of Photolithographically Patterned MUFFINS Biosensor Arrays. Materials Research Society Symposia Proceedings, 2007, 1002, 1.	0.1	1
84	Block Copolymers for DSA in the 100 ^|^Aring; Regime. Journal of Photopolymer Science and Technology = [Fotoporima Konwakai Shi], 2014, 27, 415-418.	0.1	1
85	The Photopolymer Science and Technology Award. Journal of Photopolymer Science and Technology = [Fotoporima Konwakai Shi], 2015, 28, 5-9.	0.1	1
86	A Big Year Ahead for Nano in 2018. ACS Nano, 2017, 11, 11755-11757.	7.3	1
87	Perspective: Comments on â€œPhotoinitiated Cationic Polymerization with Triarylsulfonium Salts,â€• by J. V. Crivello and J. H. W. Lam, J. Polym. Sci.: Polym. Chem. Ed., 17, 977 (1979). Journal of Polymer Science Part A, 1996, 34, 3229-3230.	2.5	0
88	Our First and Next Decades at ACS Nano. ACS Nano, 2017, 11, 7553-7555.	7.3	0
89	Helmuth MÃ¶hwald (1946â€“2018). ACS Nano, 2018, 12, 3053-3055.	7.3	0