C Grant Willson

List of Publications by Year
in descending order

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123 papers	8,942 citations	61984 43 h-index	45317 90 g-index
125 all docs	125 docs citations	125 times ranked	7770 citing authors

#	Article	IF	Citations
1	New Approaches to Nanofabrication:â€‰Molding, Printing, and Other Techniques. Chemical Reviews, 2005, 105, 1171-1196.	47.7	1,853
2	Block Copolymer Lithography. Macromolecules, 2014, 47, 2-12.	4.8	537
3	Step and flash imprint lithography: a new approach to high-resolution patterning. , 1999, 3676, 379.		487
4	Chemical amplification in the design of dry developing resist materials. Polymer Engineering and Science, 1983, 23, 1012-1018.	3.1	475
5	High-throughput sequencing of the paired human immunoglobulin heavy and light chain repertoire. Nature Biotechnology, 2013, 31, 166-169.	17.5	401
6	Polarity-Switching Top Coats Enable Orientation of Subâ€“10-nm Block Copolymer Domains. Science, 2012, 338, 775-779.	12.6	354
7	Novel secondâ€order nonlinear optical polymers via chemical crossâ€linkingâ€induced vitrification under electric field. Journal of Applied Physics, 1989, 66, 3241-3247.	2.5	247
8	Chemical Amplification in High-Resolution Imaging Systems. Accounts of Chemical Research, 1994, 27, 151-158.	15.6	244
9	Oligosaccharide/Silicon-Containing Block Copolymers with 5 nm Features for Lithographic Applications. ACS Nano, 2012, 6, 3424-3433.	14.6	194
10	Approaches to the Design of Radiationâ€Sensitive Polymeric Imaging Systems with Improved Sensitivity and Resolution. Journal of the Electrochemical Society, 1986, 133, 181-187.	2.9	163
11	Design of highâ€χ block copolymers for lithography. Journal of Polymer Science Part A, 2015, 53, 344-352.	2.3	136
12	Nanoimprint Lithography Materials Development for Semiconductor Device Fabrication. Annual Review of Materials Research, 2009, 39, 155-180.	9.3	132
13	Degradable Cross-Linkers and Strippable Imaging Materials for Step-and-Flash Imprint Lithography. Macromolecules, 2008, 41, 719-726.	4.8	124
14	Thin Film Self-Assembly of Poly(trimethylsilylstyrene-b-<scp>d</scp>,<scp>l</scp>-lactide) with Sub-10 nm Domains. Macromolecules, 2012, 45, 8722-8728.	4.8	120
15	The Mechanism of Phenolic Polymer Dissolution:â€‰A New Perspective. Macromolecules, 1997, 30, 4656-4664.	4.8	117
16	Step & flash imprint lithography. Materials Today, 2005, 8, 34-42.	14.2	111
17	Interfacial Design for Block Copolymer Thin Films. Chemistry of Materials, 2014, 26, 1471-1479.	6.7	108
18	Directed Self-Assembly and Pattern Transfer of Five Nanometer Block Copolymer Lamellae. ACS Nano, 2017, 11, 7656-7665.	14.6	103

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19	Photogeneration of Amines from Î±-Keto Carbamates:Â Photochemical Studies. Journal of the American Chemical Society, 1996, 118, 12925-12937.	13.7	96
20	Synthesis of poly(p-hydroxy-Î±-methylstyrene) by cationic polymerization and chemical modification. Macromolecules, 1983, 16, 510-517.	4.8	86
21	Ferroelectric liquid crystalline polysiloxanes with high spontaneous polarization and possible applications in nonlinear optics. Advanced Materials, 1990, 2, 539-543.	21.0	86
22	<title>Airborne chemical contamination of a chemically amplified resist</title>. , 1991, 1466, 2.		82
23	Materials for step and flash imprint lithography (S-FILÂ®). Journal of Materials Chemistry, 2007, 17, 3575.	6.7	78
24	Direct Measurement of the Reaction Front in Chemically Amplified Photoresists. Science, 2002, 297, 372-375.	12.6	77
25	Implementation of an imprint damascene process for interconnect fabrication. Journal of Vacuum Science & Technology B, 2006, 24, 1283.	1.3	77
26	Nano Day: Celebrating the Next Decade of Nanoscience and Nanotechnology. ACS Nano, 2016, 10, 9093-9103.	14.6	77
27	Hydrogel Biosensor Array Platform Indexed by Shape. Chemistry of Materials, 2004, 16, 5574-5580.	6.7	73
28	Ramifications of lubrication theory on imprint lithography. Microelectronic Engineering, 2004, 75, 321-329.	2.4	70
29	Directed Self-Assembly of Silicon-Containing Block Copolymer Thin Films. ACS Applied Materials & Interfaces, 2015, 7, 3323-3328.	8.0	68
30	<title>Step and flash imprint lithography for sub-100-nm patterning</title>. , 2000, , .		66
31	Poly[p-(formyloxy)styrene]: synthesis and radiation-induced decarbonylation. Macromolecules, 1985, 18, 317-321.	4.8	65
32	Alicyclic Polymers for 193 nm Resist Applications:Â Synthesis and Characterization. Chemistry of Materials, 1998, 10, 3319-3327.	6.7	63
33	Characterization and modeling of volumetric and mechanical properties for step and flash imprint lithography photopolymers. Journal of Vacuum Science & Technology an Official Journal of the American Vacuum Society B, Microelectronics Processing and Phenomena, 2001, 19, 2685.	1.6	62
34	Polymerization of methyl Î±-(trifluoromethyl)acrylate and .alpha.-trifluoromethylacrylonitrile and copolymerization of these monomers with methyl methacrylate. Macromolecules, 1982, 15, 915-920.	4.8	61
35	Thermally Depolymerizable Polycarbonates V. Acid Catalyzed Thermolysis of Allylic and Benzylic Polycarbonates: A New Route to Resist Imaging. Polymer Journal, 1987, 19, 31-49.	2.7	60
36	Photoinitiated Crossâ€Linking and Image Formation in Thin Polymer Films Containing a Transition Metal Compound. Journal of the Electrochemical Society, 1987, 134, 2280-2285.	2.9	60

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37	Double-Patterned Sidewall Directed Self-Assembly and Pattern Transfer of Sub-10 nm PTMSS-b-PMOST. ACS Applied Materials & Interfaces, 2015, 7, 13476-13483.	8.0	60
38	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.	4.8	59
39	Consequences of Surface Neutralization in Diblock Copolymer Thin Films. ACS Nano, 2013, 7, 9905-9919.	14.6	59
40	Imprint Materials for Nanoscale Devices. MRS Bulletin, 2005, 30, 947-951.	3.5	58
41	Airborne contamination of a chemically amplified resist. 1. Identification of problem. Chemistry of Materials, 1993, 5, 348-356.	6.7	57
42	Patterning nonflat substrates with a low pressure, room temperature, imprint lithography process. Journal of Vacuum Science & Technology an Official Journal of the American Vacuum Society B, Microelectronics Processing and Phenomena, 2001, 19, 2162.	1.6	57
43	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.	4.8	53
44	Polymeric Cross-Linked Surface Treatments for Controlling Block Copolymer Orientation in Thin Films. Langmuir, 2011, 27, 2000-2006.	3.5	53
45	Mechanism of Phenolic Polymer Dissolution:Â Importance of Acidâ^'Base Equilibria. Macromolecules, 1999, 32, 5337-5343.	4.8	52
46	Alicyclic Polymers for 193 nm Resist Applications:Â Lithographic Evaluation. Chemistry of Materials, 1998, 10, 3328-3333.	6.7	49
47	157 nm Resist Materials: A Progress Report.. Journal of Photopolymer Science and Technology = [Fotoporima Konwakai Shi], 2000, 13, 657-664.	0.3	43
48	Microlithographic Assessment of a Novel Family of Transparent and Etch-Resistant Chemically Amplified 193-nm Resists Based on Cyclopolymers. Chemistry of Materials, 2001, 13, 4147-4153.	6.7	39
49	Plasma developable photoresist systems based on chemical amplification. Chemistry of Materials, 1991, 3, 435-442.	6.7	38
50	Chemically amplified imaging materials based on electrophilic aromatic substitution: poly[4-(acetoxymethyl)styrene-co-4-hydroxystyrene]. Macromolecules, 1991, 24, 1746-1754.	4.8	38
51	Structure, Stability, and Reorganization of 0.5 L₀ Topography in Block Copolymer Thin Films. ACS Nano, 2016, 10, 10152-10160.	14.6	38
52	Design of Photoresists with Reduced Environmental Impact. 1. Water-Soluble Resists Based on Photo-Cross-Linking of Poly(vinyl alcohol). Chemistry of Materials, 1999, 11, 719-725.	6.7	36
53	Study of the kinetics of step and flash imprint lithography photopolymerization. AICHE Journal, 2005, 51, 2547-2555.	3.6	36
54	Kinetic parameters for step and flash imprint lithography photopolymerization. AICHE Journal, 2006, 52, 777-784.	3.6	34

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55	Experimental and Modeling Study of Domain Orientation in Confined Block Copolymer Thin Films. Macromolecules, 2016, 49, 308-316.	4.8	34
56	Characterizing the Interface Scaling of High Ï‡ Block Copolymers near the Orderâ€“Disorder Transition. Macromolecules, 2018, 51, 173-180.	4.8	34
57	Photoresists with Reduced Environmental Impact:Â Water-Soluble Resists Based on Photo-Cross-Linking of a Sugar-Containing Polymethacrylate. Macromolecules, 1999, 32, 86-94.	4.8	32
58	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
59	Designing Intrablock Attractions To Increase the Ï‡ Parameter of a Symmetric Diblock Copolymer. Macromolecules, 2016, 49, 8332-8340.	4.8	29
60	Photopatternable Interfaces for Block Copolymer Lithography. ACS Macro Letters, 2014, 3, 824-828.	4.8	28
61	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.	6.7	28
62	Molecular model of phenolic polymer dissolution in photolithography. Journal of Polymer Science, Part B: Polymer Physics, 1999, 37, 2103-2113.	2.1	27
63	Organic imaging materials: a view of the future. Journal of Physical Organic Chemistry, 2000, 13, 767-774.	1.9	27
64	Understanding molecular-level effects during post-exposure processing. , 2001, , .		27
65	The Evolution of Materials for the Photolithographic Process. Journal of Photopolymer Science and Technology = [Fotoporima Konwakai Shi], 2003, 16, 621-627.	0.3	26
66	Ordering poly(trimethylsilyl styreneâ€blockâ€<scp>D,L</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.	2.1	25
67	Study of acid transport using IR spectroscopy and SEM. , 2000, , .		24
68	Title is missing!. Die Makromolekulare Chemie Rapid Communications, 1986, 7, 121-126.	1.1	23
69	Photopatterning of Block Copolymer Thin Films. ACS Macro Letters, 2016, 5, 460-465.	4.8	23
70	Nanoscience and Nanotechnology Impacting Diverse Fields of Science, Engineering, and Medicine. ACS Nano, 2016, 10, 10615-10617.	14.6	22
71	Pattern Transfer of Sub-10 nm Features via Tin-Containing Block Copolymers. ACS Macro Letters, 2016, 5, 391-395.	4.8	22
72	Synthesis and Properties of Diazopiperidiones for Use in Nonchemically Amplified Deep UV Photoresists. Chemistry of Materials, 2004, 16, 1770-1774.	6.7	20

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73	Synthesis and Characterization of a Two Stage, Nonlinear Photobase Generator. Journal of Organic Chemistry, 2015, 80, 7530-7535.	3.2	19
74	Photogenerated Base in Resist and Imaging Materials:Â Design of Functional Polymers Susceptible to Base Catalyzed Decarboxylation. Chemistry of Materials, 1997, 9, 2887-2893.	6.7	18
75	Mesoscale Monte Carlo Simulation of Photoresist Processing. Journal of the Electrochemical Society, 2004, 151, G155.	2.9	17
76	Thermal analysis for step and flash imprint lithography during UV curing process. Microelectronic Engineering, 2006, 83, 213-217.	2.4	17
77	Directed self assembly of block copolymers using chemical patterns with sidewall guiding lines, backfilled with random copolymer brushes. Soft Matter, 2015, 11, 9107-9114.	2.7	17
78	Synthesis and thinâ€film orientation of poly(styreneâ€blockâ€trimethylsilylisoprene). Journal of Polymer Science Part A, 2013, 51, 290-297.	2.3	16
79	Ultraviolet curable branched siloxanes as low-k dielectrics for imprint lithography. Journal of Vacuum Science and Technology B:Nanotechnology and Microelectronics, 2013, 31, .	1.2	16
80	Synthesis of Unzipping Polyester and a Study of its Photochemistry. Journal of the American Chemical Society, 2019, 141, 14736-14741.	13.7	16
81	Poly(vinyl-t-butyl carbonate) synthesis and thermolysis to poly(vinyl alcohol). Polymer Bulletin, 1987, 17, 1-6.	3.3	15
82	Design of polymeric imaging materials based on electrophilic aromatic substitution: model studies. Macromolecules, 1991, 24, 1741-1745.	4.8	15
83	Block Copolymer Orientation Control Using a Top-Coat Surface Treatment. Journal of Photopolymer Science and Technology = [Fotoporima Konwakai Shi], 2012, 25, 125-130.	0.3	15
84	Light-Activated Replication of Block Copolymer Fingerprint Patterns. Macromolecules, 2013, 46, 4510-4519.	4.8	15
85	Poly(methyl Î±-trifluoromethylacrylate) as a positive electron beam resist. Polymer Engineering and Science, 1983, 23, 1000-1003.	3.1	14
86	Quantifying the Interface Energy of Block Copolymer Top Coats. ACS Macro Letters, 2016, 5, 1306-1311.	4.8	12
87	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.	8.0	11
88	New Design for Self-Developing Imaging Systems Based on Thermally Labile Polyformals. ACS Symposium Series, 1989, , 100-112.	0.5	10
89	Novel derivatives of poly(4-hydroxystyrene) with easily removable tertiary, allylic, or benzylic ethers. Polymer Bulletin, 1988, 20, 427-434.	3.3	9
90	Synthesis of Amphiphilic Naturally-Derived Oligosaccharide-block-Wax Oligomers and Their Self-Assembly. ACS Macro Letters, 2014, 3, 839-844.	4.8	9

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91	Interactions between plasma and block copolymers used in directed self-assembly patterning. Proceedings of SPIE, 2016, , .	0.8	8
92	Nonswelling Negative Resists Incorporating Chemical Amplification. ACS Symposium Series, 1989, , 74-85.	0.5	7
93	Formation of deprotected fuzzy blobs in chemically amplified resists. Journal of Polymer Science, Part B: Polymer Physics, 2004, 42, 3063-3069.	2.1	7
94	Polymer dissolution model: an energy adaptation of the critical ionization theory. , 2009, , .		7
95	Spatial Control of the Self-assembled Block Copolymer Domain Orientation and Alignment on Photopatterned Surfaces. ACS Applied Materials & Interfaces, 2020, 12, 23399-23409.	8.0	7
96	Synthesis and Reactivity of 3-Diazo-4-oxocoumarins for Photolithographic Applications. Chemistry of Materials, 2004, 16, 1763-1769.	6.7	6
97	Penultimate effect in radical copolymerization of 2â€trifluoromethylacrylates. Journal of Polymer Science Part A, 2008, 46, 1559-1565.	2.3	6
98	Mesoscale modeling: a study of particle generation and line-edge roughness. Journal of Micro/Nanolithography, MEMS, and MOEMS, 2014, 13, 013012.	0.9	6
99	Mesoscale simulation of positive tone chemically amplified photoresists. , 2002, , .		5
100	Non-chemically amplified resists for 193 nm lithography. Proceedings of SPIE, 2008, , .	0.8	5
101	A Study of Tin-containing Block Copolymers. Journal of Photopolymer Science and Technology = [Fotoporima Konwakai Shi], 2014, 27, 445-448.	0.3	5
102	Photochemical Reactions for Replicating and Aligning Block Copolymer Thin Film Patterns. Journal of Photopolymer Science and Technology = [Fotoporima Konwakai Shi], 2014, 27, 435-440.	0.3	5
103	New Approaches to Nanofabrication: Molding, Printing, and Other Techniques. ChemInform, 2005, 36, no.	0.0	4
104	Feature Multiplexingâ€”Improving the Efficiency of Microarray Devices. Angewandte Chemie - International Edition, 2006, 45, 3338-3341.	13.8	4
105	Polarity-switching Top Coats for Silicon-containing Block Copolymer Orientation Control. Journal of Photopolymer Science and Technology = [Fotoporima Konwakai Shi], 2013, 26, 223-224.	0.3	4
106	Progress Report on the Generation of Polyfunctional Microscale Particles for Programmed Self-Assembly. Chemistry of Materials, 2014, 26, 1457-1462.	6.7	4
107	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.	0.3	4
108	Chemically Amplified, Positive Tone, Polynorbornene Dielectric for Microelectronics Packaging. ECS Journal of Solid State Science and Technology, 2015, 4, N3001-N3007.	1.8	4

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109	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.	0.3	4
110	Influence of topographically patterned angled guidelines on directed self-assembly of block copolymers. Physical Review E, 2017, 96, 052501.	2.1	3
111	Resist materials. Microelectronic Engineering, 1985, 3, 277-278.	2.4	2
112	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
113	The Influence of Structure on Dissolution Inhibition for Novolac-Based Photoresists: Adaption of the Probabilistic Approach. ACS Symposium Series, 1998, , 292-305.	0.5	2
114	Directly patternable benzocyclobutene and methacrylate silsesquioxanes for microelectronics packaging. Journal of the Ceramic Society of Japan, 2015, 123, 800-804.	1.1	2
115	Unusual Thermal Properties of Certain Poly(3,5-disubstituted styrene)s. Macromolecules, 2020, 53, 5504-5511.	4.8	2
116	Defect mitigation in sub-20nm patterning with high-chi, silicon-containing block copolymers. , 2019, , .		2
117	<title>Resist materials design: base-catalyzed chemical amplification</title>. , 1993, , .		1
118	THE FUTURE OF APPLIED POLYMER SCIENCE. , 2000, , 591-633.		1
119	Rational design of bleachable nonchemically amplified DUV photoactive compounds. , 2001, , .		1
120	Deprotection volume characteristics and line-edge morphology in chemcially amplified resists. , 2003, , .		1
121	Modeling of Self-Assembly Dynamics of Photolithographically Patterned MUFFINS Biosensor Arrays. Materials Research Society Symposia Proceedings, 2007, 1002, 1.	0.1	1
122	The Photopolymer Science and Technology Award. Journal of Photopolymer Science and Technology = [Fotoporima Konwakai Shi], 2003, 16, 3-4.	0.3	0
123	Our First and Next Decades at ACS Nano. ACS Nano, 2017, 11, 7553-7555.	14.6	0