David M Walba

List of Publications by Year
in descending order

112 papers	5,020 citations	117625 34 h-index	95266 68 g-index
116 all docs	116 docs citations	116 times ranked	2417 citing authors

#	Article	IF	Citations
1	Spontaneous Formation of Macroscopic Chiral Domains in a Fluid Smectic Phase of Achiral Molecules. Science, 1997, 278, 1924-1927.	12.6	1,176
2	Chiral heliconical ground state of nanoscale pitch in a nematic liquid crystal of achiral molecular dimers. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, 15931-15936.	7.1	431
3	Twist-bend heliconical chiral nematic liquid crystal phase of an achiral rigid bent-core mesogen. Physical Review E, 2014, 89, 022506.	2.1	212
4	First-principles experimental demonstration of ferroelectricity in a thermotropic nematic liquid crystal: Polar domains and striking electro-optics. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 14021-14031.	7.1	174
5	Resonant Carbon<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:mi>K</mml:mi></mml:mrow></mml:math>-Edge Soft X-Ray Scattering from Lattice-Free Heliconical Molecular Ordering: Soft Dilative Elasticity of the Twist-Bend Liquid Crystal Phase. Physical Review Letters, 2016, 116, 147803.	7.8	157
6	Spontaneous Ferroelectric Order in a Bent-Core Smectic Liquid Crystal of Fluid Orthorhombic Layers. Science, 2011, 332, 72-77.	12.6	141
7	Effects of Monomer Structure on Their Organization and Polymerization in a Smectic Liquid Crystal. Science, 1997, 275, 57-59.	12.6	114
8	Electro-Optic Switching by Helicene Liquid Crystals. Chemistry of Materials, 2002, 14, 773-776.	6.7	111
9	Fast Ferroelectric Liquid-Crystal Electrooptics. Science, 1995, 270, 250-250.	12.6	89
10	Design and synthesis of new ferroelectric liquid crystals. 14. An approach to the stereocontrolled synthesis of polar organic thin films for nonlinear optical applications. Journal of the American Chemical Society, 1991, 113, 5471-5474.	13.7	80
11	On the Nature of the B4 Banana Phase:â€‰ Crystal or Not a Crystal?. Crystal Growth and Design, 2005, 5, 2091-2099.	3.0	80
12	Detecting Molecular Chirality by Scanning Tunneling Microscopy. Accounts of Chemical Research, 1996, 29, 591-597.	15.6	78
13	Chirality-Preserving Growth of Helical Filaments in the B4 Phase of Bent-Core Liquid Crystals. Journal of the American Chemical Society, 2011, 133, 12656-12663.	13.7	75
14	Driving a Liquid Crystal Phase Transition Using a Photochromic Hydrazone. Journal of the American Chemical Society, 2018, 140, 13623-13627.	13.7	73
15	An Approach to the Design of Ferroelectric Liquid Crystals with Large Second Order Electronic Nonlinear Optical Susceptibility. Molecular Crystals and Liquid Crystals, 1991, 198, 51-60.	0.7	65
16	Distinct differences in the nanoscale behaviors of the twistâ€“bend liquid crystal phase of a flexible linear trimer and homologous dimer. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 10698-10704.	7.1	62
17	Phase behaviour and electro-optic characteristics of a polymer stabilized ferroelectric liquid crystal. Liquid Crystals, 1995, 19, 719-727.	2.2	58
18	Main-Chain Ferroelectric Liquid Crystal Oligomers by Acyclic Diene Metathesis Polymerization1. Journal of the American Chemical Society, 1996, 118, 2740-2741.	13.7	56

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19	Polymerization Conditions and Electrooptic Properties of Polymer-Stabilized Ferroelectric Liquid Crystals. Chemistry of Materials, 1998, 10, 2378-2388.	6.7	56
20	Design and synthesis of ferroelectric liquid crystals. 15.¹FLC materials for nonlinear optics applications. Ferroelectrics, 1991, 121, 247-257.	0.6	53
21	Multistep hierarchical self-assembly of chiral nanopore arrays. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 14342-14347.	7.1	53
22	Nanoconfinement of guest materials by helical nanofilament networks of bent-core mesogens. Soft Matter, 2013, 9, 462-471.	2.7	51
23	Polar in-plane surface orientation of a ferroelectric nematic liquid crystal: Polar monodomains and twisted state electro-optics. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.1	51
24	A Modulated Helical Nanofilament Phase. Angewandte Chemie - International Edition, 2013, 52, 5254-5257.	13.8	45
25	Ferroelectric Liquid Crystals for Nonlinear Optics:Â Orientation of the Disperse Red 1 Chromophore along the Ferroelectric Liquid Crystal Polar Axisâ€. Journal of the American Chemical Society, 1996, 118, 1211-1212.	13.7	44
26	Probing and Controlling Liquid Crystal Helical Nanofilaments. Nano Letters, 2015, 15, 3420-3424.	9.1	42
27	Abiotic ligation of DNA oligomers templated by their liquid crystal ordering. Nature Communications, 2015, 6, 6424.	12.8	42
28	An Electricâ€Fieldâ€Responsive Discotic Liquidâ€Crystalline Hexaâ€periâ€Hexabenzocoronene/Oligothiophene Hybrid. Advanced Materials, 2014, 26, 2066-2071.	21.0	40
29	A bow-phase mesogen showing strong, robust analog electro-optics. Journal of Materials Chemistry, 2001, 11, 2743-2747.	6.7	38
30	Structure of the B4 Liquid Crystal Phase near a Glass Surface. ChemPhysChem, 2012, 13, 155-159.	2.1	38
31	Alignment of helical nanofilaments on the surfaces of various self-assembled monolayers. Soft Matter, 2013, 9, 6185.	2.7	38
32	Surface alignment of ferroelectric nematic liquid crystals. Soft Matter, 2021, 17, 8130-8139.	2.7	38
33	Highly Oriented Liquid Crystal Semiconductor for Organic Field-Effect Transistors. ACS Central Science, 2018, 4, 1495-1502.	11.3	37
34	Direkte Beobachtung von aus Enantiomeren aufgebauten enantiomorphen Monoschichtâ€Kristallen mit der Rastertunnelmikroskopie. Angewandte Chemie, 1996, 108, 955-957.	2.0	36
35	Charge Generation Measured for Fullereneâ€“Helical Nanofilament Liquid Crystal Heterojunctions. ACS Applied Materials & Interfaces, 2014, 6, 4823-4830.	8.0	35
36	Ferroelectric Liquid Crystal Conglomerates. Topics in Stereochemistry, 2004, , 457-518.	2.0	34

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37	Xâ€ray observation of electroclinic layer constriction and rearrangement in a chiral smecticâ€A liquid crystal. Applied Physics Letters, 1995, 67, 362-364.	3.3	33
38	Diastereomeric liquid crystal domains at the mesoscale. Nature Communications, 2015, 6, 7763.	12.8	33
39	Structural transitions and guest/host complexing of liquid crystal helical nanofilaments induced by nanoconfinement. Science Advances, 2017, 3, e1602102.	10.3	32
40	Main-Chain Chiral Smectic Polymers Showing a Large Electroclinic Effect in the SmA* Phase. Chemistry of Materials, 2006, 18, 4576-4584.	6.7	31
41	Electric field induced transitions from TGBA* and TGBC* to smectic A and C states. Ferroelectrics, 1993, 147, 255-262.	0.6	30
42	Pretransitional Orientational Ordering of a Calamitic Liquid Crystal by Helical Nanofilaments of a Bent-Core Mesogen. Langmuir, 2010, 26, 15541-15545.	3.5	30
43	Electrically Tunable Reflection Color of Chiral Ferroelectric Nematic Liquid Crystals. Advanced Optical Materials, 2021, 9, 2101230.	7.3	30
44	Novel liquid-crystalline mesogens and main-chain chiral smectic thiol-ene polymers based on trifluoromethylphenyl moieties. Journal of Materials Chemistry, 2009, 19, 7208.	6.7	29
45	Reflection Symmetry Breaking in Achiral Rod-Shaped Smectic Liquid Crystals?. Journal of the American Chemical Society, 2006, 128, 5318-5319.	13.7	28
46	Self-assembled hydrophobic surface generated from a helical nanofilament (B4) liquid crystal phase. Soft Matter, 2013, 9, 2793.	2.7	28
47	Giant surface electroclinic effect in a chiral smectic A liquid crystal. Liquid Crystals, 2001, 28, 117-123.	2.2	27
48	Molecular design of ferroelectric liquid crystals. Ferroelectrics, 1988, 84, 65-72.	0.6	26
49	The first high polarization ferroelectric main chain liquid crystalline polymers. Liquid Crystals, 1995, 18, 915-918.	2.2	25
50	Ideal mixing of paraelectric and ferroelectric nematic phases in liquid crystals of distinct molecular species. Liquid Crystals, 2022, 49, 1531-1544.	2.2	25
51	Evolution of the boulder model for the molecular origins of the polarization in ferroelectric liquid crystals. Ferroelectrics, 1991, 113, 21-36.	0.6	24
52	Ferroelectric properties of a series of core-fluorinated dopants containing the 2,3-difluoroalkoxy tail. Liquid Crystals, 1993, 14, 1061-1068.	2.2	24
53	Generalized Langevin–Debye model of the field dependence of tilt, birefringence, and polarization current near the de Vries smectic-<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mi>A</mml:mi></mml:math><mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msup><mml:mrow /><mml:mo>*</mml:mo></mml:msup></mml:math>to smectic-<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mi>C</mml:mi></mml:math> phase transition.	2.1	23
54	Chiral Incommensurate Helical Phase in a Smectic of Achiral Bent-Core Mesogens. Physical Review Letters, 2019, 122, 107801.	7.8	21

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55	Alignment of the columnar liquid crystal phase of nano-DNA by confinement in channels. Liquid Crystals, 2012, 39, 571-577.	2.2	20
56	Molecular structure of the discotic liquid crystalline phase of hexa-peri-hexabenzocoronene/oligothiophene hybrid and their charge transport properties. Journal of Chemical Physics, 2015, 143, 144505.	3.0	20
57	Energy Pooling Upconversion in Organic Molecular Systems. Journal of Physical Chemistry A, 2015, 119, 4009-4016.	2.5	20
58	Atomic-Detail Simulation Studies of Smectic Liquid Crystals. Molecular Simulation, 1995, 14, 343-360.	2.0	18
59	On the Origin of the â€œGiantâ€•Electroclinic Effect in a â€œDe Vriesâ€â€Type Ferroelectric Liquid Crystal Material for Chirality Sensing Applications. ChemPhysChem, 2009, 10, 890-892.	2.1	18
60	The intrinsic photoferroelectric effect in the smectic C* phase of a chiral azobenzene. Journal of Materials Chemistry, 2006, 16, 4170.	6.7	16
61	de Gennes' triclinic smectics â€“ not so far-fetched after all. Liquid Crystals, 2009, 36, 1309-1317.	2.2	16
62	Multidimensional Helical Nanostructures in Multiscale Nanochannels. Langmuir, 2015, 31, 8156-8161.	3.5	16
63	High performance electroclinic materials. Ferroelectrics, 1993, 148, 435-442.	0.6	15
64	Smectic liquid crystal alignment using mechanically rubbedn-octadecylsiloxane self-assembled monolayers. Liquid Crystals, 2002, 29, 1015-1024.	2.2	15
65	The peculiar optic, dielectric and Xâ€ray diffraction properties of a fluorinated de Vries asymmetric diffuse coneâ€model ferroelectric liquid crystal. Liquid Crystals, 2006, 33, 17-23.	2.2	15
66	Effective conductivity due to continuous polarization reorientation in fluid ferroelectrics. Physical Review E, 2011, 84, 020701.	2.1	15
67	Ferroelectric Liquid Crystals Designed for Electronic Nonlinear Optical Applications. ACS Symposium Series, 1991, , 484-496.	0.5	14
68	Supermolecular stereochemistry in ferroelectric liquid crystals. Journal of Physical Organic Chemistry, 2000, 13, 830-836.	1.9	14
69	A General Method for Measurement of Enantiomeric Excess by Using Electrooptics in Ferroelectric Liquid Crystals. Angewandte Chemie - International Edition, 2007, 46, 1473-1475.	13.8	14
70	Orientation control over bent-core smectic liquid crystal phases. Liquid Crystals, 2014, 41, 328-341.	2.2	13
71	Chiral Isotropic Sponge Phase of Hexatic Smectic Layers of Achiral Molecules. ChemPhysChem, 2014, 15, 1502-1507.	2.1	13
72	Chirality Detection with FLCsâ€”a Comment. Ferroelectrics, 2004, 309, 121-123.	0.6	12

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73	Effect of Conformational Chirality on Optical Activity Observed in a Smectic of Achiral, Bent-Core Molecules. Journal of Physical Chemistry B, 2017, 121, 6944-6950.	2.6	12
74	Mean field theory-based calculation of FLC polarization. Liquid Crystals, 2002, 29, 1073-1085.	2.2	11
75	Chiral SmA* materials for display applications?. Journal of the Society for Information Display, 2007, 15, 585-588.	2.1	11
76	Synthesis and physical properties of a main-chain chiral smectic thiol-ene oligomer. Liquid Crystals, 2010, 37, 325-334.	2.2	11
77	Nanoconfinement of the Lowâ€Temperature Dark Conglomerate: Structural Control from Focal Conics to Helical Nanofilaments. Chemistry - A European Journal, 2019, 25, 7438-7442.	3.3	11
78	Field control of the surface electroclinic effect in chiral smectic-Aliquid crystals. Physical Review E, 2004, 69, 061716.	2.1	10
79	Topography of bent-core liquid crystals at the air/liquid crystal interface. Liquid Crystals, 2013, 40, 1730-1735.	2.2	10
80	Studies on Ferroelectric Liquid Crystal Tolan Derivatives Designed for Nonlinear Optical Applications. Materials Research Society Symposia Proceedings, 1992, 277, 205.	0.1	9
81	A Mainâ€Chain de Vries Smectic Liquid Crystal Polymer Prepared by Hoveydaâ€“Grubbs Catalyst Initiated Acyclic Diene Metathesis Polymerization. Macromolecular Rapid Communications, 2009, 30, 1894-1899.	3.9	9
82	Spiral layer undulation defects in B7 liquid crystals. Soft Matter, 2013, 9, 11303.	2.7	9
83	Ferroelectric and antiferroelectric oddâ€“even behavior in a tricarbosilane-terminated liquid crystal homologous series. Chemical Science, 2014, 5, 1869-1874.	7.4	8
84	Properties of a series of phenylpyrimidine ferroelectric liquid crystals possessing the 2,3-difluoroalkoxy tail. Ferroelectrics, 1991, 121, 219-223.	0.6	7
85	Synthesis, spectra, and ferroelectric properties of a series of dihalogenated dopants. Ferroelectrics, 1991, 121, 213-218.	0.6	7
86	Third International Ferroelectric Liquid Crystal Conference (FLC 91)University of Colorado, Boulder, Colorado, USA, June 24â€“28 1991. Liquid Crystals Today, 1991, 1, 4-4.	2.3	7
87	Design and synthesis of ferroelectric liquid crystals. 22. side-by-side dimers for nonlinear optics. Ferroelectrics, 1996, 179, 211-220.	0.6	6
88	Manipulating the twist sense of helical nanofilaments of bent-core liquid crystals using rod-shaped, chiral mesogenic dopants. Liquid Crystals, 2016, 43, 1083-1091.	2.2	6
89	Nanoconfined heliconical structure of twist-bend nematic liquid crystal phase. Liquid Crystals, 2019, 46, 316-325.	2.2	6
90	Main-Chain Ferroelectric Liquid Crystal Polymers for Electronic Nonlinear Optics Applications 1. Ferroelectrics, 2004, 309, 77-82.	0.6	5

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91	Dynamics of cis isomers in highly sensitive amino-azobenzene monolayers: The effect of slow relaxation on photo-induced anisotropy. Journal of Applied Physics, 2011, 109, 103521.	2.5	5
92	Cybotactic behavior in the de Vries smectic-A* liquid-crystal structure formed by a silicon-containing molecule. Physical Review E, 2014, 89, 032502.	2.1	5
93	The heliconical nematic twist-bend phase from â€œclassicâ€•bent-core benzylideneanilines with oligomethylene cores. Molecular Crystals and Liquid Crystals, 2017, 647, 430-438.	0.9	5
94	Precision adiabatic scanning calorimetry of a nematic â€“ ferroelectric nematic phase transition. Liquid Crystals, 2022, 49, 780-789.	2.2	5
95	Precise orientation control of a liquid crystal organic semiconductor via anisotropic surface treatment. NPG Asia Materials, 2022, 14, .	7.9	5
96	Understanding and Manipulating Helical Nanofilaments in Binary Systems with Achiral Dopants. Nano Letters, 2022, 22, 4569-4575.	9.1	5
97	Design and Synthesis of Ferroelectric Liquid Crystals. 25. An Approach to New Materials for Ultra-Fast Electronic Electro-Optic Modulators. Molecular Crystals and Liquid Crystals, 1996, 288, 83-91.	0.3	4
98	Polarity-directed analog electro-optic switching in a low-polarization chiral smectic liquid crystal with positive dielectric anisotropy. Physical Review E, 2004, 70, 031703.	2.1	4
99	Airflow-aligned helical nanofilament (B4) phase in topographic confinement. Scientific Reports, 2016, 6, 29111.	3.3	4
100	Aggregation-driven, re-entrant isotropic phase in a smectic liquid crystal material. Liquid Crystals, 2017, 44, 769-783.	2.2	4
101	New SmAPF Mesogens Designed for Analog Electrooptics Applications. Materials, 2017, 10, 1284.	2.9	4
102	Harmonic generation in ferroelectric liquid crystals: Phase matching loci. Applied Physics Letters, 1994, 64, 2919-2921.	3.3	2
103	Technique for Measuring Electronic-Based Electro-Optic Coefficients of Ferroelectric Liquid Crystals. Materials Research Society Symposia Proceedings, 1995, 392, 135.	0.1	2
104	Ferroelectric Liquid Crystals for Nonlinear Optics: can we Really do It?. Materials Research Society Symposia Proceedings, 1995, 392, 157.	0.1	2
105	New Ferroelectric Liquid Crystal Polymers for Nonlinear Optics Applications. Materials Research Society Symposia Proceedings, 1995, 392, 147.	0.1	1
106	Design of Smectic Liquid Crystal Phases Using Layer Interface Clinicity. ACS Symposium Series, 2001, , 268-281.	0.5	1
107	Effect of shape and nano-segregation in Î”²-isoxazoline and isoxazole on the mesogenic behavior of 1,3-bis-isophthalimines. Liquid Crystals, 2022, 49, 699-708.	2.2	1
108	Design and synthesis of ferroelectric liquid crystals. 24. Incorporation of the disperse red 1 chromophqre into side-by-side dimers for nonlinear optics. Materials Research Society Symposia Proceedings, 1995, 413, 357.	0.1	0

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109	Antiferroelectric Liquid Crystals from Achiral Molecules And A Liquid Conglomerate. Materials Research Society Symposia Proceedings, 1999, 559, 3.	0.1	0
110	Macromol. Rapid Commun. 22/2009. Macromolecular Rapid Communications, 2009, 30, .	3.9	0
111	Frontispiece: Nanoconfinement of the Lowâ€Temperature Dark Conglomerate: Structural Control from Focal Conics to Helical Nanofilaments. Chemistry - A European Journal, 2019, 25, .	3.3	0
112	Synthesis and Cutting â€œin Halfâ€•of a Molecular MÃ¶bius Stripâ€”Applications of Low Dimensional Topology in Chemistry. Series on Knots and Everything, 1995, , 427-463.	0.0	0