

R Joseph Kline

List of Publications by Year in descending order

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110
papers

14,017
citations

38742

50
h-index

30087

103
g-index

111
all docs

111
docs citations

111
times ranked

10430
citing authors

#	ARTICLE	IF	CITATIONS
1	Liquid-crystalline semiconducting polymers with high charge-carrier mobility. <i>Nature Materials</i> , 2006, 5, 328-333.	27.5	2,001
2	Dependence of Regioregular Poly(3-hexylthiophene) Film Morphology and Field-Effect Mobility on Molecular Weight. <i>Macromolecules</i> , 2005, 38, 3312-3319.	4.8	1,003
3	Controlling the Field-Effect Mobility of Regioregular Polythiophene by Changing the Molecular Weight. <i>Advanced Materials</i> , 2003, 15, 1519-1522.	21.0	899
4	Highly oriented crystals at the buried interface in polythiophene thin-film transistors. <i>Nature Materials</i> , 2006, 5, 222-228.	27.5	737
5	Microstructural Characterization and Charge Transport in Thin Films of Conjugated Polymers. <i>Advanced Materials</i> , 2010, 22, 3812-3838.	21.0	464
6	Molecular origin of high field-effect mobility in an indacenodithiophene-benzothiadiazole copolymer. <i>Nature Communications</i> , 2013, 4, 2238.	12.8	456
7	Contact-induced crystallinity for high-performance soluble acene-based transistors and circuits. <i>Nature Materials</i> , 2008, 7, 216-221.	27.5	455
8	Semiconducting Thienothiophene Copolymers: Design, Synthesis, Morphology, and Performance in Thin-Film Organic Transistors. <i>Advanced Materials</i> , 2009, 21, 1091-1109.	21.0	412
9	Molecular-weight-dependent mobilities in regioregular poly(3-hexyl-thiophene) diodes. <i>Applied Physics Letters</i> , 2005, 86, 122110.	3.3	411
10	Molecular Packing of High-Mobility Diketo Pyrrolo-Pyrrole Polymer Semiconductors with Branched Alkyl Side Chains. <i>Journal of the American Chemical Society</i> , 2011, 133, 15073-15084.	13.7	381
11	X-ray Scattering Study of Thin Films of Poly(2,5-bis(3-alkylthiophen-2-yl)thieno[3,2-b]thiophene). <i>Journal of the American Chemical Society</i> , 2007, 129, 3226-3237.	13.7	351
12	Critical Role of Side-Chain Attachment Density on the Order and Device Performance of Polythiophenes. <i>Macromolecules</i> , 2007, 40, 7960-7965.	4.8	321
13	Anisotropic Structure and Charge Transport in Highly Strain-Aligned Regioregular Poly(3-hexylthiophene). <i>Advanced Functional Materials</i> , 2011, 21, 3697-3705.	14.9	288
14	High Carrier Mobility Polythiophene Thin Films: Structure Determination by Experiment and Theory. <i>Advanced Materials</i> , 2007, 19, 833-837.	21.0	276
15	Quantitative analysis of lattice disorder and crystallite size in organic semiconductor thin films. <i>Physical Review B</i> , 2011, 84, .	3.2	262
16	Molecular Order in High-Efficiency Polymer/Fullerene Bulk Heterojunction Solar Cells. <i>ACS Nano</i> , 2011, 5, 8248-8257.	14.6	260
17	Molecular Characterization of Organic Electronic Films. <i>Advanced Materials</i> , 2011, 23, 319-337.	21.0	215
18	Correlations between Mechanical and Electrical Properties of Polythiophenes. <i>ACS Nano</i> , 2010, 4, 7538-7544.	14.6	210

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19	Morphology and Charge Transport in Conjugated Polymers. <i>Journal of Macromolecular Science - Reviews in Macromolecular Chemistry and Physics</i> , 2006, 46, 27-45.	2.2	192
20	Synthesis, Characterization, and Field-Effect Transistor Performance of Carboxylate-Functionalized Polythiophenes with Increased Air Stability. <i>Chemistry of Materials</i> , 2005, 17, 4892-4899.	6.7	185
21	Interfacial Segregation in Polymer/Fullerene Blend Films for Photovoltaic Devices. <i>Macromolecules</i> , 2010, 43, 3828-3836.	4.8	182
22	Structural origin of gap states in semicrystalline polymers and the implications for charge transport. <i>Physical Review B</i> , 2011, 83, .	3.2	180
23	Organic Single-Crystal Field-Effect Transistors of a Soluble Anthradithiophene. <i>Chemistry of Materials</i> , 2008, 20, 6733-6737.	6.7	178
24	Controlling the Orientation of Terraced Nanoscale "Ribbons" of a Poly(thiophene) Semiconductor. <i>ACS Nano</i> , 2009, 3, 780-787.	14.6	160
25	Nanoscale structure measurements for polymer-fullerene photovoltaics. <i>Energy and Environmental Science</i> , 2012, 5, 5980.	30.8	145
26	Significant dependence of morphology and charge carrier mobility on substrate surface chemistry in high performance polythiophene semiconductor films. <i>Applied Physics Letters</i> , 2007, 90, 062117.	3.3	136
27	Confinement-Driven Increase in Ionomer Thin-Film Modulus. <i>Nano Letters</i> , 2014, 14, 2299-2304.	9.1	132
28	The Influence of Polymer Purification on Photovoltaic Device Performance of a Series of Indacenodithiophene Donor Polymers. <i>Advanced Materials</i> , 2013, 25, 2029-2034.	21.0	129
29	Use of X-Ray Diffraction, Molecular Simulations, and Spectroscopy to Determine the Molecular Packing in a Polymer-Fullerene Bimolecular Crystal. <i>Advanced Materials</i> , 2012, 24, 6071-6079.	21.0	126
30	In Situ Characterization of Polymer-Fullerene Bilayer Stability. <i>Macromolecules</i> , 2015, 48, 383-392.	4.8	126
31	The Effect of Interfacial Roughness on the Thin Film Morphology and Charge Transport of High-Performance Polythiophenes. <i>Advanced Functional Materials</i> , 2008, 18, 742-750.	14.9	120
32	Molecular Basis of Mesophase Ordering in a Thiophene-Based Copolymer. <i>Macromolecules</i> , 2008, 41, 5709-5715.	4.8	114
33	Three-Dimensional Packing Structure and Electronic Properties of Biaxially Oriented Poly(2,5-bis(3-alkylthiophene-2-yl)thieno[3,2-b]thiophene) Films. <i>Journal of the American Chemical Society</i> , 2012, 134, 6177-6190.	13.7	108
34	Vertically Segregated Structure and Properties of Small Molecule-Polymer Blend Semiconductors for Organic Thin-Film Transistors. <i>Advanced Functional Materials</i> , 2013, 23, 366-376.	14.9	106
35	Poly(3-hexylthiophene) and [6,6]-Phenyl-C ₆₁ -butyric Acid Methyl Ester Mixing in Organic Solar Cells. <i>Macromolecules</i> , 2012, 45, 6587-6599.	4.8	103
36	Influence of Side-Chain Regiochemistry on the Transistor Performance of High-Mobility, All-Donor Polymers. <i>Journal of the American Chemical Society</i> , 2014, 136, 15154-15157.	13.7	97

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37	Effect of Processing Additives on the Solidification of Blade-Coated Polymer/Fullerene Blend Films via In-situ Structure Measurements. <i>Advanced Energy Materials</i> , 2013, 3, 938-948.	19.5	96
38	Charge Transport in Highly Face-On Poly(3-hexylthiophene) Films. <i>Journal of Physical Chemistry C</i> , 2013, 117, 17421-17428.	3.1	95
39	<i>Xi-cam</i> : a versatile interface for data visualization and analysis. <i>Journal of Synchrotron Radiation</i> , 2018, 25, 1261-1270.	2.4	89
40	Scanning electron microscope measurement of width and shape of 10 nm patterned lines using a JMONSEL-modeled library. <i>Ultramicroscopy</i> , 2015, 154, 15-28.	1.9	83
41	Morphological Origin of Charge Transport Anisotropy in Aligned Polythiophene Thin Films. <i>Advanced Functional Materials</i> , 2014, 24, 3422-3431.	14.9	77
42	Significantly Increasing the Ductility of High Performance Polymer Semiconductors through Polymer Blending. <i>ACS Applied Materials & Interfaces</i> , 2016, 8, 14037-14045.	8.0	68
43	Controlling the Microstructure of Solution-Processable Small Molecules in Thin-Film Transistors through Substrate Chemistry. <i>Chemistry of Materials</i> , 2011, 23, 1194-1203.	6.7	67
44	Tailored interfaces for self-patterning organic thin-film transistors. <i>Journal of Materials Chemistry</i> , 2012, 22, 19047.	6.7	66
45	Tuning Open-Circuit Voltage in Organic Solar Cells with Molecular Orientation. <i>ACS Applied Materials & Interfaces</i> , 2015, 7, 13208-13216.	8.0	64
46	Zone-Refinement Effect in Small Molecule~Polymer Blend Semiconductors for Organic Thin-Film Transistors. <i>Journal of the American Chemical Society</i> , 2011, 133, 412-415.	13.7	59
47	Determination of the Internal Morphology of Nanostructures Patterned by Directed Self Assembly. <i>ACS Nano</i> , 2014, 8, 8426-8437.	14.6	58
48	NIST Standard Reference Material 3600: Absolute Intensity Calibration Standard for Small-Angle X-ray Scattering. <i>Journal of Applied Crystallography</i> , 2017, 50, 462-474.	4.5	57
49	Germaindacenodithiophene based low band gap polymers for organic solar cells. <i>Chemical Communications</i> , 2012, 48, 2955.	4.1	53
50	Determining the shape and periodicity of nanostructures using small-angle X-ray scattering. <i>Journal of Applied Crystallography</i> , 2015, 48, 1355-1363.	4.5	53
51	Influence of source-drain electric field on mobility and charge transport in organic field-effect transistors. <i>Journal of Applied Physics</i> , 2007, 102, .	2.5	47
52	Measuring Domain Sizes and Compositional Heterogeneities in P3HT~PCBM Bulk Heterojunction Thin Films with ¹ H Spin Diffusion NMR Spectroscopy. <i>Advanced Functional Materials</i> , 2012, 22, 1255-1266.	14.9	47
53	Measuring the Extent of Phase Separation in Poly-3-Hexylthiophene/Phenyl-C ₆₁ -Butyric Acid Methyl Ester Photovoltaic Blends with ¹ H Spin Diffusion NMR Spectroscopy. <i>Chemistry of Materials</i> , 2010, 22, 2930-2936.	6.7	46
54	Thin Film Microstructure of a Solution Processable Pyrene-Based Organic Semiconductor. <i>Chemistry of Materials</i> , 2008, 20, 5743-5749.	6.7	44

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55	Influence of substrate on crystallization in polythiophene/fullerene blends. <i>Solar Energy Materials and Solar Cells</i> , 2011, 95, 1375-1381.	6.2	42
56	Influence of Dielectric Surface Chemistry on the Microstructure and Carrier Mobility of an n-Type Organic Semiconductor. <i>Advanced Functional Materials</i> , 2009, 19, 2365-2372.	14.9	41
57	Electroluminescence imaging and microstructure of organic light-emitting field-effect transistors. <i>Applied Physics Letters</i> , 2008, 92, .	3.3	40
58	Plastic Deformation of Polymer Blends as a Means to Achieve Stretchable Organic Transistors. <i>Advanced Electronic Materials</i> , 2017, 3, 1600388.	5.1	39
59	Oriented Liquid Crystalline Polymer Semiconductor Films with Large Ordered Domains. <i>ACS Applied Materials & Interfaces</i> , 2015, 7, 26726-26734.	8.0	38
60	Near Infrared Absorbing Soluble Poly(cyclopenta[2,1-b:3,4-b ²]dithiophen-4-one)vinylene Polymers Exhibiting High Hole and Electron Mobilities in Ambient Air. <i>Chemistry of Materials</i> , 2013, 25, 59-68.	6.7	35
61	Reducing Block Copolymer Interfacial Widths through Polymer Additives. <i>Macromolecules</i> , 2015, 48, 679-686.	4.8	34
62	Anisotropic Elastic Modulus of Oriented Regioregular Poly(3-hexylthiophene) Films. <i>Macromolecules</i> , 2016, 49, 327-333.	4.8	34
63	Characterizing the Interface Scaling of High χ Block Copolymers near the Order-Disorder Transition. <i>Macromolecules</i> , 2018, 51, 173-180.	4.8	34
64	Three-dimensional x-ray metrology for block copolymer lithography line-space patterns. <i>Journal of Micro/ Nanolithography, MEMS, and MOEMS</i> , 2013, 12, 031103.	0.9	33
65	Benzotrithiophene Copolymers: Influence of Molecular Packing and Energy Levels on Charge Carrier Mobility. <i>Macromolecules</i> , 2014, 47, 2883-2890.	4.8	26
66	Template-polymer commensurability and directed self-assembly block copolymer lithography. <i>Journal of Polymer Science, Part B: Polymer Physics</i> , 2015, 53, 595-603.	2.1	26
67	Derivation of Multiple Covarying Material and Process Parameters Using Physics-Based Modeling of X-ray Data. <i>Macromolecules</i> , 2017, 50, 7783-7793.	4.8	26
68	Panchromatic All-Polymer Photodetector with Tunable Polarization Sensitivity. <i>Advanced Optical Materials</i> , 2019, 7, 1801346.	7.3	26
69	Effect of Fullerenes on Crystallization-Induced Aggregation in Polymer Photovoltaics Casting Solutions. <i>Macromolecules</i> , 2012, 45, 1046-1055.	4.8	25
70	Advancing x-ray scattering metrology using inverse genetic algorithms. <i>Journal of Micro/ Nanolithography, MEMS, and MOEMS</i> , 2016, 15, 034001.	0.9	24
71	Directed Self-Assembly of Lamellar Copolymers: Effects of Interfacial Interactions on Domain Shape. <i>ACS Macro Letters</i> , 2012, 1, 1244-1248.	4.8	23
72	Classification of semiconducting polymeric mesophases to optimize device postprocessing. <i>Journal of Polymer Science, Part B: Polymer Physics</i> , 2015, 53, 1641-1653.	2.1	23

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73	Improved Efficiency in Poly(3-hexylthiophene)/Zinc Oxide Solar Cells via Lithium Incorporation. <i>Journal of Physical Chemistry C</i> , 2009, 113, 17608-17612.	3.1	21
74	Impact of Substrate Characteristics on Stretchable Polymer Semiconductor Behavior. <i>ACS Applied Materials & Interfaces</i> , 2019, 11, 3280-3289.	8.0	20
75	Soft crystal martensites: An in situ resonant soft x-ray scattering study of a liquid crystal martensitic transformation. <i>Science Advances</i> , 2020, 6, eaay5986.	10.3	20
76	Interface Engineering To Control Magnetic Field Effects of Organic-Based Devices by Using a Molecular Self-Assembled Monolayer. <i>ACS Nano</i> , 2014, 8, 7192-7201.	14.6	19
77	Confinement and Processing Can Alter the Morphology and Periodicity of Bottlebrush Block Copolymers in Thin Films. <i>ACS Nano</i> , 2020, 14, 17476-17486.	14.6	19
78	Conjugation Effects on Carrier Mobilities of Polythiophenes Probed by Time-Resolved Terahertz Spectroscopy. <i>Journal of Physical Chemistry C</i> , 2008, 112, 10587-10590.	3.1	18
79	Post-directed-self-assembly membrane fabrication for <i>in situ</i> analysis of block copolymer structures. <i>Nanotechnology</i> , 2016, 27, 435303.	2.6	18
80	Influence of Additives on the Interfacial Width and Line Edge Roughness in Block Copolymer Lithography. <i>Chemistry of Materials</i> , 2020, 32, 2399-2407.	6.7	17
81	Evaluation of the effect of data quality on the profile uncertainty of critical dimension small angle x-ray scattering. <i>Journal of Micro/ Nanolithography, MEMS, and MOEMS</i> , 2016, 15, 014001.	0.9	16
82	Dependence of electrical performance on structural organization in polymer field effect transistors. <i>Journal of Polymer Science, Part B: Polymer Physics</i> , 2017, 55, 1063-1074.	2.1	15
83	Critical dimension small angle X-ray scattering measurements of FinFET and 3D memory structures. <i>Proceedings of SPIE</i> , 2013, , .	0.8	13
84	Optimizing self-consistent field theory block copolymer models with X-ray metrology. <i>Molecular Systems Design and Engineering</i> , 2018, 3, 376-389.	3.4	13
85	Intercomparison between optical and x-ray scatterometry measurements of FinFET structures. , 2013, , .		12
86	In-plane Alignment in Organic Solar Cells to Probe the Morphological Dependence of Charge Recombination. <i>Advanced Functional Materials</i> , 2015, 25, 1296-1303.	14.9	12
87	Quantifying the Interface Energy of Block Copolymer Top Coats. <i>ACS Macro Letters</i> , 2016, 5, 1306-1311.	4.8	12
88	Traceable GISAXS measurements for pitch determination of a 25-nm self-assembled polymer grating. <i>Journal of Applied Crystallography</i> , 2014, 47, 1912-1920.	4.5	11
89	Local Orientational Structure of a P3HT Conjugated Network Investigated by X-ray Nanodiffraction. <i>Journal of Physical Chemistry Letters</i> , 2014, 5, 2335-2339.	4.6	11
90	Characterizing Patterned Block Copolymer Thin Films with Soft X-rays. <i>ACS Applied Materials & Interfaces</i> , 2017, 9, 31325-31334.	8.0	10

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91	Molecular Orientation Depth Profiles in Organic Glasses Using Polarized Resonant Soft X-ray Reflectivity. <i>Chemistry of Materials</i> , 2020, 32, 6295-6309.	6.7	10
92	The influence of molecular weight on the microstructure and thin film transistor characteristics of pBTTT polymers.. , 2006, , .		9
93	X-ray scattering critical dimensional metrology using a compact x-ray source for next generation semiconductor devices. <i>Journal of Micro/ Nanolithography, MEMS, and MOEMS</i> , 2017, 16, 014001.	0.9	9
94	Thermodynamic and Morphological Behavior of Block Copolymer Blends with Thermal Polymer Additives. <i>Macromolecules</i> , 2016, 49, 4898-4908.	4.8	7
95	Spatial Control of the Self-assembled Block Copolymer Domain Orientation and Alignment on Photopatterned Surfaces. <i>ACS Applied Materials & Interfaces</i> , 2020, 12, 23399-23409.	8.0	7
96	Advancing the computational methodology of rigid rod and semiflexible polymer systems: A new solution to the wormlike chain model with rod-coil copolymer calculations. <i>Journal of Polymer Science, Part B: Polymer Physics</i> , 2019, 57, 29-39.	2.1	6
97	Extracting dimensional parameters of gratings produced with self-aligned multiple patterning using grazing-incidence small-angle x-ray scattering. <i>Journal of Micro/ Nanolithography, MEMS, and MOEMS</i> , 2020, 19, 1.	0.9	6
98	Characterization of the Non-uniform Reaction in Chemically Amplified Calix[4]resorcinarene Molecular Resist Thin Films. <i>Australian Journal of Chemistry</i> , 2011, 64, 1065.	0.9	4
99	Multiscale 3D X-ray imaging. <i>Nature Electronics</i> , 2019, 2, 435-436.	26.0	4
100	Distinguishing between nonlinear channel transport and contact effects in organic FETs. <i>Proceedings of SPIE</i> , 2007, , .	0.8	3
101	X-ray characterization of contact holes for block copolymer lithography. <i>Journal of Applied Crystallography</i> , 2019, 52, 106-114.	4.5	3
102	Methodology for evaluating the information distribution in small angle scattering from periodic nanostructures. <i>Journal of Micro/ Nanolithography, MEMS, and MOEMS</i> , 2018, 17, 1.	0.9	3
103	Modeling the polarized X-ray scattering from periodic nanostructures with molecular anisotropy. <i>Journal of Applied Crystallography</i> , 2017, 50, 1677-1690.	4.5	2
104	Buried Structure in Block Copolymer Films Revealed by Soft X-ray Reflectivity. <i>ACS Nano</i> , 2021, 15, 9577-9587.	14.6	2
105	Compact X-ray Sources for Metrology Applications in the Semiconductor Industry. , 2016, , .		1
106	The Influence of Additives on the Interfacial Width and Line Edge Roughness in Block Copolymer Lithography. <i>Chemistry of Materials</i> , 2020, 32, .	6.7	1
107	Evaluating structure in thin block copolymer films with soft x-rays (Conference Presentation). , 2017, , .		0
108	X-ray Metrology for the Semiconductor Industry Tutorial. <i>Journal of Research of the National Institute of Standards and Technology</i> , 2019, 124, 1-3.	1.2	0

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109	X-ray characterization of contact holes for block copolymer lithography. Journal of Applied Crystallography, 2019, 52, .	4.5	0
110	Methodology for evaluating the information distribution in small angle scattering from periodic nanostructures. Journal of Micro/ Nanolithography, MEMS, and MOEMS, 2018, 17, .	0.9	0