Carlos Silva AcuÃ±a

List of Publications by Year
in descending order

141 papers	10,906 citations	38742 50 h-index	30087 103 g-index
154 all docs	154 docs citations	154 times ranked	10449 citing authors

#	Article	IF	Citations
1	H- and J-Aggregate Behavior in Polymeric Semiconductors. Annual Review of Physical Chemistry, 2014, 65, 477-500.	10.8	834
2	Role of Intermolecular Coupling in the Photophysics of Disordered Organic Semiconductors: Aggregate Emission in Regioregular Polythiophene. Physical Review Letters, 2007, 98, 206406.	7.8	816
3	Multi-phase microstructures drive exciton dissociation in neat semicrystalline polymeric semiconductors. Journal of Materials Chemistry C, 2015, 3, 10715-10722.	5.5	689
4	Determining exciton bandwidth and film microstructure in polythiophene films using linear absorption spectroscopy. Applied Physics Letters, 2009, 94, .	3.3	492
5	Cyclodextrin-threaded conjugated polyrotaxanes as insulated molecular wires with reduced interstrand interactions. Nature Materials, 2002, 1, 160-164.	27.5	471
6	Attaching Perylene Dyes to Polyfluorene:Â Three Simple, Efficient Methods for Facile Color Tuning of Light-Emitting Polymers. Journal of the American Chemical Society, 2003, 125, 437-443.	13.7	441
7	Exciton Regeneration at Polymeric Semiconductor Heterojunctions. Physical Review Letters, 2004, 92, 247402.	7.8	390
8	Interchain vs. intrachain energy transfer in acceptor-capped conjugated polymers. Proceedings of the National Academy of Sciences of the United States of America, 2002, 99, 10982-10987.	7.1	362
9	Barrier-Free Electronâ€“Hole Capture in Polymer Blend Heterojunction Light-Emitting Diodes. Advanced Materials, 2003, 15, 1708-1712.	21.0	326
10	Exciton dissociation mechanisms in the polymeric semiconductors poly(9,9-dioctylfluorene) and poly(9,9-dioctylfluorene-co-benzothiadiazole). Physical Review B, 2001, 63, .	3.2	283
11	The impact of molecular weight on microstructure and charge transport in semicrystalline polymer semiconductorsâ€“poly(3-hexylthiophene), a model study. Progress in Polymer Science, 2013, 38, 1978-1989.	24.7	274
12	Exciton Migration in Rigid-Rod Conjugated Polymers:Â An Improved FÃ¶rster Model. Journal of the American Chemical Society, 2005, 127, 4744-4762.	13.7	257
13	Phonon coherences reveal the polaronic character of excitons in two-dimensional lead halide perovskites. Nature Materials, 2019, 18, 349-356.	27.5	257
14	Determining exciton coherence from the photoluminescence spectral line shape in poly(3-hexylthiophene) thin films. Journal of Chemical Physics, 2009, 130, 074904.	3.0	241
15	Charge Generation Kinetics and Transport Mechanisms in Blended Polyfluorene Photovoltaic Devices. Nano Letters, 2002, 2, 1353-1357.	9.1	214
16	Femtosecond Solvation Dynamics of the Hydrated Electron. Physical Review Letters, 1998, 80, 1086-1089.	7.8	199
17	Electronic Coherence, Vibrational Coherence, and Solvent Degrees of Freedom in the Femtosecond Spectroscopy of Mixed-Valence Metal Dimers in H2O and D2O. The Journal of Physical Chemistry, 1995, 99, 2609-2616.	2.9	150
18	Detailed Investigation of the Femtosecond Pumpâ€’Probe Spectroscopy of the Hydrated Electron. Journal of Physical Chemistry A, 1998, 102, 6957-6966.	2.5	142

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19	Direct observation of ultrafast long-range charge separation at polymerâ€“fullerene heterojunctions. Nature Communications, 2014, 5, 4288.	12.8	140
20	The Binding Energy of Charge-Transfer Excitons Localized at Polymeric Semiconductor Heterojunctions. Journal of Physical Chemistry C, 2011, 115, 7114-7119.	3.1	131
21	Charge Separation in Semicrystalline Polymeric Semiconductors by Photoexcitation: Is the Mechanism Intrinsic or Extrinsic?. Physical Review Letters, 2011, 106, 197401.	7.8	118
22	Exciton-polaron spectral structures in two-dimensional hybrid lead-halide perovskites. Physical Review Materials, 2018, 2, .	2.4	116
23	Noise-induced quantum coherence drives photo-carrier generation dynamics at polymeric semiconductor heterojunctions. Nature Communications, 2014, 5, 3119.	12.8	111
24	Exciton migration in a polythiophene: Probing the spatial and energy domain by line-dipole FÃ¶rster-type energy transfer. Journal of Chemical Physics, 2005, 122, 094903.	3.0	102
25	The influence of solidâ€state microstructure on the origin and yield of longâ€lived photogenerated charge in neat semiconducting polymers. Journal of Polymer Science, Part B: Polymer Physics, 2012, 50, 27-37.	2.1	101
26	Exciton Polarons in Two-Dimensional Hybrid Metal-Halide Perovskites. Journal of Physical Chemistry Letters, 2020, 11, 3173-3184.	4.6	100
27	Efficient exciton dissociation via two-step photoexcitation in polymeric semiconductors. Physical Review B, 2001, 64, .	3.2	99
28	Efficient Energy Transfer in Mixed Columnar Stacks of Hydrogen-Bonded Oligo(p-phenylene vinylene)s in Solution. Angewandte Chemie - International Edition, 2004, 43, 1976-1979.	13.8	99
29	Persistent Conjugated Backbone and Disordered Lamellar Packing Impart Polymers with Efficient nâ€Doping and High Conductivities. Advanced Materials, 2021, 33, e2005946.	21.0	99
30	Two-dimensional spatial coherence of excitons in semicrystalline polymeric semiconductors: Effect of molecular weight. Physical Review B, 2013, 88, .	3.2	96
31	Optical Spectroscopy of a Polyfluorene Copolymer at High Pressure: Intra- and Intermolecular Interactions. Physical Review Letters, 2007, 99, 167401.	7.8	92
32	Stable biexcitons in two-dimensional metal-halide perovskites with strong dynamic lattice disorder. Physical Review Materials, 2018, 2, .	2.4	89
33	Ultrafast Spectroscopy with Photocurrent Detection: Watching Excitonic Optoelectronic Systems at Work. Journal of Physical Chemistry Letters, 2016, 7, 250-258.	4.6	81
34	Excitation Migration along Oligophenylenevinylene-Based Chiral Stacks:Â Delocalization Effects on Transport Dynamics. Journal of Physical Chemistry B, 2005, 109, 10594-10604.	2.6	80
35	Correlation Between Molecular Structure, Microscopic Morphology, and Optical Propertiesof Poly(tetraalkylindenofluorene)s. Advanced Functional Materials, 2002, 12, 729-733.	14.9	75
36	Ultrafast Spectroscopy of the Solvent Dependence of Electron Transfer in a Perylenebisimide Dimer. Journal of Physical Chemistry A, 2005, 109, 8548-8552.	2.5	74

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37	Fast exciton diffusion in chiral stacks of conjugatedp-phenylene vinylene oligomers. Physical Review B, 2003, 68, .	3.2	73
38	Modification of Fluorophore Photophysics through Peptide-Driven Self-Assembly. Journal of the American Chemical Society, 2008, 130, 5487-5491.	13.7	72
39	Time-dependent energy transfer rates in a conjugated polymer guest-host system. Physical Review B, 2004, 70, .	3.2	71
40	Direct pump/probe spectroscopy of the near-IR band of the solvated electron in alcohols. Chemical Physics Letters, 1995, 232, 135-140.	2.6	68
41	Influence of Copolymer Interface Orientation on the Optical Emission of Polymeric Semiconductor Heterojunctions. Physical Review Letters, 2006, 96, 117403.	7.8	64
42	Efficient Radiative Pumping of Polaritons in a Strongly Coupled Microcavity by a Fluorescent Molecular Dye. Advanced Optical Materials, 2016, 4, 1615-1623.	7.3	61
43	Exciton trapping at heterojunctions in polymer blends. Journal of Chemical Physics, 2005, 122, 244906.	3.0	58
44	Endothermic exciplexâ€“exciton energy-transfer in a blue-emitting polymeric heterojunction system. Chemical Physics Letters, 2004, 391, 81-84.	2.6	56
45	Supramolecular Electronic Coupling in Chiral Oligothiophene Nanostructures. Advanced Materials, 2006, 18, 1281-1285.	21.0	56
46	Control of Rapid Formation of Interchain Excited States in Sugarâ€Threaded Supramolecular Wires. Advanced Materials, 2008, 20, 3218-3223.	21.0	56
47	Efficient light harvesting in a photovoltaic diode composed of a semiconductor conjugated copolymer blend. Applied Physics Letters, 2002, 80, 2204-2206.	3.3	55
48	Detailed Investigations of the Pumpâ”Probe Spectroscopy of the Equilibrated Solvated Electron in Alcohols. Journal of Physical Chemistry A, 1998, 102, 5701-5707.	2.5	54
49	Ultrafast decoherence dynamics govern photocarrier generation efficiencies in polymer solar cells. Scientific Reports, 2016, 6, 29437.	3.3	52
50	Exciton bimolecular annihilation dynamics in supramolecular nanostructures of conjugated oligomers. Physical Review B, 2003, 68, .	3.2	50
51	Carrier recombination dynamics in<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:msub><mml:mrow><mml:mtext>In</mml:mtext></mml:mrow><mml:mi>x</mml:mi></mml:msub> quantum wells. Physical Review B, 2010, 82, .	3.2	49
52	Towards supramolecular electronics. Synthetic Metals, 2004, 147, 43-48.	3.9	44
53	Exciton and polaron dynamics in a step-ladder polymeric semiconductor: the influence of interchain order. Journal of Physics Condensed Matter, 2002, 14, 9803-9824.	1.8	42
54	Controlling the Interaction of Light with Polymer Semiconductors. Advanced Materials, 2013, 25, 4906-4911.	21.0	42

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55	Effect of Temperature and Chain Length on the Bimodal Emission Properties of Single Polyfluorene Copolymer Moleculesâ€. Journal of Physical Chemistry B, 2006, 110, 18898-18903.	2.6	40
56	Electronâ€“Phonon Couplings Inherent in Polarons Drive Exciton Dynamics in Two-Dimensional Metal-Halide Perovskites. Chemistry of Materials, 2019, 31, 7085-7091.	6.7	40
57	Femtosecond absorption anisotropy of the aqueous solvated electron. Chemical Physics Letters, 1994, 228, 658-664.	2.6	39
58	Exciton migration to chain aggregates in conjugated polymers: influence of side-chain substitution. Chemical Physics Letters, 2001, 347, 318-324.	2.6	37
59	Electric field-induced transition from heterojunction to bulk charge recombination in bilayer polymer light-emitting diodes. Applied Physics Letters, 2005, 86, 163501.	3.3	37
60	(4NPEA)₂PbI₄ (4NPEA = 4-Nitrophenylethylammonium): Structural, NMR, and Optical Properties of a 3 Ã— 3 Corrugated 2D Hybrid Perovskite. Journal of the American Chemical Society, 2019, 141, 4521-4525.	13.7	37
61	Robust and Stretchable Polymer Semiconducting Networks: From Film Microstructure to Macroscopic Device Performance. Chemistry of Materials, 2019, 31, 6530-6539.	6.7	37
62	Intrinsically distinct hole and electron transport in conjugated polymers controlled by intra and intermolecular interactions. Nature Communications, 2019, 10, 5226.	12.8	36
63	A Thiazoleâ€“Naphthalene Diimide Based n-Channel Donorâ€“Acceptor Conjugated Polymer. Macromolecules, 2018, 51, 7320-7328.	4.8	35
64	Supramolecular architectures. Materials Today, 2004, 7, 24-32.	14.2	34
65	Incoherent population mixing contributions to phase-modulation two-dimensional coherent excitation spectra. Journal of Chemical Physics, 2017, 147, 114201.	3.0	34
66	Influence of mesoscopic ordering on the photoexcitation transfer dynamics in supramolecular assemblies of oligo-p-phenylenevinylene. Chemical Physics Letters, 2006, 418, 196-201.	2.6	33
67	Some like it hot. Nature Materials, 2013, 12, 5-6.	27.5	32
68	Ultrafast Study of the Photodissociation and Recombination of Aqueous O3-. The Journal of Physical Chemistry, 1996, 100, 5188-5199.	2.9	31
69	Recombination Dynamics of Charge Pairs in a Pushâ€“Pull Polyfluorene-Derivative. Journal of Physical Chemistry B, 2013, 117, 4649-4653.	2.6	30
70	Excited-state absorption in luminescent conjugated polymer thin films: ultrafast studies of processable polyindenofluorene derivatives. Chemical Physics Letters, 2000, 319, 494-500.	2.6	28
71	Charge-Transfer Intermediates in the Electrochemical Doping Mechanism of Conjugated Polymers. Journal of the American Chemical Society, 2021, 143, 294-308.	13.7	28
72	Ultrafast charge photogeneration in conjugated polymer thin films. Synthetic Metals, 2001, 116, 9-13.	3.9	25

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73	Tuning Interfacial Charge-Transfer Excitons at Polymer-Polymer Heterojunctions under Hydrostatic Pressure. Physical Review Letters, 2008, 100, 157401.	7.8	24
74	Resonance Raman spectroscopy and imaging of pushâ€“pull conjugated polymerâ€“fullerene blends. Journal of Materials Chemistry C, 2015, 3, 6058-6066.	5.5	24
75	Enhanced screening and spectral diversity in many-body elastic scattering of excitons in two-dimensional hybrid metal-halide perovskites. Physical Review Research, 2019, 1, .	3.6	24
76	Optical probing of sample heating in scanning near-field experiments with apertured probes. Applied Physics Letters, 2005, 86, 011102.	3.3	22
77	The effect of phase morphology on the nature of long-lived charges in semiconductor polymer:fullerene systems. Journal of Materials Chemistry C, 2015, 3, 3722-3729.	5.5	22
78	The Importance of Quantifying the Composition of the Amorphous Intermixed Phase in Organic Solar Cells. Advanced Materials, 2020, 32, e2005241.	21.0	21
79	Estimating the conditions for polariton condensation in organic thin-film microcavities. Journal of Chemical Physics, 2012, 136, 034510.	3.0	19
80	On the Effect of Confinement on the Structure and Properties of Smallâ€Molecular Organic Semiconductors. Advanced Electronic Materials, 2018, 4, 1700308.	5.1	19
81	Convective self-assembly of Ï€-conjugated oligomers and polymers. Journal of Materials Chemistry C, 2017, 5, 2513-2518.	5.5	18
82	Sequential absorption processes in two-photon-excitation transient absorption spectroscopy in a semiconductor polymer. Physical Review B, 2006, 73, .	3.2	17
83	Monte Carlo Simulation of Exciton Bimolecular Annihilation Dynamics in Supramolecular Semiconductor Architectures. Journal of Physical Chemistry C, 2007, 111, 19111-19119.	3.1	17
84	Excitonic coupling dominates the homogeneous photoluminescence excitation linewidth in semicrystalline polymeric semiconductors. Physical Review B, 2017, 95, .	3.2	17
85	Mesoscopic order and the dimensionality of long-range resonance energy transfer in supramolecular semiconductors. Journal of Chemical Physics, 2008, 129, 104701.	3.0	16
86	Charge recombination in distributed heterostructures of semiconductor discotic and polymeric materials.. Journal of Applied Physics, 2008, 103, 124510.	2.5	16
87	The Importance of Microstructure in Determining Polaron Generation Yield in Poly(9,9-dioctylfluorene). Chemistry of Materials, 2019, 31, 6787-6797.	6.7	16
88	Amplified Spontaneous Emission in Close-Packed Films of Semiconductor Nanocrystals Using Picosecond Excitation. Advanced Functional Materials, 2002, 12, 537.	14.9	15
89	The effects of supramolecular assembly on exciton decay rates in organic semiconductors. Journal of Chemical Physics, 2005, 123, 084902.	3.0	15
90	Analysis of the excited-state absorption spectral bandshape of oligofluorenes. Journal of Chemical Physics, 2010, 132, 214510.	3.0	15

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91	Toward Fast Screening of Organic Solar Cell Blends. Advanced Science, 2020, 7, 2000960.	11.2	15
92	Probing dynamical symmetry breaking using quantum-entangled photons. Quantum Science and Technology, 2018, 3, 015003.	5.8	14
93	Data Science Guided Experiments Identify Conjugated Polymer Solution Concentration as a Key Parameter in Device Performance. , 2021, 3, 1321-1327.		14
94	Charge-transfer excitons in strongly coupled organic semiconductors. Physical Review B, 2010, 81, .	3.2	12
95	Slow geminateâ€chargeâ€pair recombination dynamics at polymer: Fullerene heterojunctions in efficient organic solar cells. Journal of Polymer Science, Part B: Polymer Physics, 2012, 50, 1395-1404.	2.1	12
96	Probing polaron excitation spectra in organic semiconductors by photoinduced-absorption-detected two-dimensional coherent spectroscopy. Chemical Physics, 2016, 481, 281-286.	1.9	12
97	Photon entanglement entropy as a probe of many-body correlations and fluctuations. Journal of Chemical Physics, 2019, 150, 184106.	3.0	12
98	Stochastic scattering theory for excitation-induced dephasing: Time-dependent nonlinear coherent exciton lineshapes. Journal of Chemical Physics, 2020, 153, 164706.	3.0	12
99	Resonance energy transfer dynamics in hydrogen-bonded oligo-p-phenylenevinylene nanostructures. Synthetic Metals, 2004, 147, 29-35.	3.9	11
100	A little energy goes a long way. Nature Materials, 2010, 9, 884-885.	27.5	11
101	Recombination dynamics in InGaN/GaN nanowire heterostructures on Si(111). Nanotechnology, 2013, 24, 045702.	2.6	11
102	The influence of molecular interface modification on the charge dynamics of polymeric semiconductor:ZnO heterostructure. Journal of Applied Physics, 2014, 116, 074502.	2.5	11
103	Bulky Cations Improve Band Alignment and Efficiency in Snâ€“Pb Halide Perovskite Solar Cells. ACS Applied Energy Materials, 2021, 4, 2616-2628.	5.1	11
104	Conjugated Polymer Mesocrystals with Structural and Optoelectronic Coherence and Anisotropy in Three Dimensions. Advanced Materials, 2022, 34, e2103002.	21.0	11
105	Large electronic bandwidth in solution-processable pyrene crystals: The role of close-packed crystal structure. Journal of Chemical Physics, 2012, 137, 034706.	3.0	10
106	Frenkel biexcitons in hybrid HJ photophysical aggregates. Science Advances, 2021, 7, eabi5197.	10.3	10
107	Thermodynamics of exciton/polaritons in one and two dimensional organic single-crystal microcavities. Physical Chemistry Chemical Physics, 2012, 14, 3226.	2.8	9
108	Probing exciton/exciton interactions with entangled photons: Theory. Journal of Chemical Physics, 2020, 152, 071101.	3.0	9

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109	Exciton dynamics in supramolecular assemblies of p-phenylenevinylene oligomers. Synthetic Metals, 2003, 139, 839-842.	3.9	8
110	Role of charge separation mechanism and local disorder at hybrid solar cell interfaces. Physical Review B, 2015, 91, .	3.2	7
111	Stochastic scattering theory for excitation-induced dephasing: Comparison to the Andersonâ€“Kubo lineshape. Journal of Chemical Physics, 2020, 153, 154115.	3.0	7
112	Homogeneous Optical Line Widths in Hybrid Ruddlesdenâ€“Popper Metal Halides Can Only Be Measured Using Nonlinear Spectroscopy. Journal of Physical Chemistry C, 2022, 126, 5378-5387.	3.1	7
113	Nonlinear photocarrier dynamics and the role of shallow traps in mixed-halide mixed-cation hybrid perovskites. Journal of Materials Chemistry C, 2021, 9, 8204-8212.	5.5	6
114	Investigation of heating effects in near-field experiments with luminescent organic semiconductors. Synthetic Metals, 2004, 147, 165-169.	3.9	5
115	Observation of Photoinduced Proton Transfer between the Titania Surface and Dye Molecule. Journal of Physical Chemistry C, 2020, 124, 4172-4178.	3.1	5
116	Peculiar anharmonicity of Ruddlesden Popper metal halides: temperature-dependent phonon dephasing. Materials Horizons, 2022, 9, 492-499.	12.2	5
117	Excitons in perylene tetracarboxdiimide crystals for optoelectronics. Physica Status Solidi C: Current Topics in Solid State Physics, 2009, 6, 93-96.	0.8	3
118	The role of acceptor-rich domain in optoelectronic properties of photovoltaic diodes based on polymer blends. Chemical Physics Letters, 2013, 583, 92-96.	2.6	3
119	Charge percolation pathways in polymer blend photovoltaic diodes with sub-mesoscopic two-phase microstructures. Chemical Physics Letters, 2013, 572, 44-47.	2.6	3
120	The hole in the bucky: structure-property mapping of closed- vs. open-cage fullerene solar-cell blends via temperature/composition phase diagrams. Journal of Materials Chemistry C, 0, , .	5.5	2
121	Linear and nonlinear optical properties of a quadrupolar carbo-benzene and its benzenic parent: The carbo-merization effect. Dyes and Pigments, 2021, 188, 109133.	3.7	2
122	Synthesis of Donorâ€“Acceptor Copolymers Derived from Diketopyrrolopyrrole and Fluorene via Eco-Friendly Direct Arylation: Nonlinear Optical Properties, Transient Absorption Spectroscopy, and Theoretical Modeling. Energies, 2022, 15, 3855.	3.1	2
123	Endothermic exciplex?exciton energy-transfer in a blue-emitting polymeric heterojunction system. Chemical Physics Letters, 2004, 391, 81-81.	2.6	1
124	Charge Generation in Inorganic/Organic Photovoltaic Blends. Springer Series in Chemical Physics, 2005, , 783-785.	0.2	1
125	Concerning the stability of biexcitons in hybrid HJ aggregates of Ï€-conjugated polymers. Journal of Chemical Physics, 2022, 156, 181101.	3.0	1
126	Stochastic exciton-scattering theory of optical line shapes: Renormalized many-body contributions. Journal of Chemical Physics, 2022, 157, .	3.0	1

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127	<title>Two-photon excited transient absorption in poly(9,9'-dioctylfluorene-<emph) Tj ETQq1 1 0.784314 rgBT /Overlock 10 Tf 50 74		0
128	Charge-transfer excitons at semiconductor polymer heterojunctions in efficient organic photovoltaic diodes. , 2011, , .		0
129	Persistent polarization memory in sexithiophene nanostructures. Physical Review B, 2011, 83, .	3.2	0
130	Optical signatures of the interplay between intermolecular and intramolecular coupling in plastic semiconductors. Proceedings of SPIE, 2012, , .	0.8	0
131	Biography of Paul F. Barbara. Journal of Physical Chemistry B, 2013, 117, 4157-4159.	2.6	0
132	Long-lived photoexcitations in intercalated, partially and predominantly non-intercalated polymer:fullerene blends. , 2013, , .		0
133	What do dephasing dynamics teach us about exciton polarons in hybrid Ruddlesden Popper metal halides?. , 0, , .		0
134	Ultrafast investigation of exciton dissociation processes in polymeric semiconductors at high pump fluence. Springer Series in Chemical Physics, 2003, , 377-379.	0.2	0
135	Femtosecond Pump-Probe Spectroscopy on the Equilibrated Aqueous Solvated Electron: Isotope Effects and Saturation Studies. Springer Series in Chemical Physics, 1998, , 583-585.	0.2	0
136	2D coherent photocurrent excitation spectroscopy. SPIE Newsroom, 0, , .	0.1	0
137	Towards Metallic-Type Transport in Polymers: Establishing Structure/Property Interrelationships. , 0, , .		0
138	Phonon coherences reveal the polaronic character of excitons in two-dimensional lead halide perovskites. , 0, , .		0
139	Optoelectronic Landscape of Polymer Semiconductors in High-k Surroundings. , 0, , .		0
140	On the Nature of Exciton-Bath Interactions in Two-Dimensional Lead Halide Perovskites. , 0, , .		0
141	On the Nature of Exciton-Bath Interactions in Two-Dimensional Lead Halide Perovskites. , 0, , .		0