Frank C Spano

List of Publications by Year
in descending order

107 papers	13,192 citations	30070 54 h-index	29157 104 g-index
113 all docs	113 docs citations	113 times ranked	9948 citing authors

#	Article	IF	Citations
1	A Holsteinâ€“Peierls Approach to Excimer Spectra: The Evolution from Vibronically Structured to Unstructured Emission. Journal of Physical Chemistry C, 2022, 126, 4067-4081.	3.1	20
2	Quantifying Polaron Mole Fractions and Interpreting Spectral Changes in Molecularly Doped Conjugated Polymers. Advanced Electronic Materials, 2022, 8, .	5.1	7
3	Correction to â€œConfirmation of the Origins of Panchromatic Spectra in Squaraine Thin Films Targeted for Organic Photovoltaic Devicesâ€. Journal of Physical Chemistry C, 2022, 126, 11436-11437.	3.1	0
4	An Efficient Narrowband Nearâ€Infrared at 1040Ânm Organic Photodetector Realized by Intermolecular Charge Transfer Mediated Coupling Based on a Squaraine Dye. Advanced Materials, 2021, 33, e2100582.	21.0	88
5	HJ-aggregates of donorâ€“acceptorâ€“donor oligomers and polymers. Journal of Chemical Physics, 2021, 155, 034905.	3.0	19
6	Unusual Non-Kasha Photophysical Behavior of Aggregates of Pushâ€“Pull Donorâ€“Acceptor Chromophores. Journal of Physical Chemistry C, 2020, 124, 2146-2159.	3.1	22
7	Excitons and Polarons in Organic Materials. Accounts of Chemical Research, 2020, 53, 2201-2211.	15.6	63
8	A Thermostable Protein Matrix for Spectroscopic Analysis of Organic Semiconductors. Journal of the American Chemical Society, 2020, 142, 13898-13907.	13.7	3
9	Vibronic exciton model for low bandgap donorâ€“acceptor polymers. Journal of Chemical Physics, 2020, 153, 244901.	3.0	19
10	Excitonâ€“phonon polaritons in organic microcavities: Testing a simple ansatz for treating a large number of chromophores. Journal of Chemical Physics, 2020, 152, 204113.	3.0	15
11	Measurement and Theoretical Interpretation of Exciton Diffusion as a Function of Intermolecular Separation for Squaraines Targeted for Bulk Heterojunction Solar Cells. Journal of Physical Chemistry C, 2020, 124, 4032-4043.	3.1	14
12	Frenkelâ€“Holstein Hamiltonian applied to absorption spectra of quaterthiophene-based 2D hybrid organicâ€“inorganic perovskites. Journal of Chemical Physics, 2020, 152, 144702.	3.0	8
13	Perylene Diimide-Based Hj- and hJ-Aggregates: The Prospect of Exciton Band Shape Engineering in Organic Materials. Journal of Physical Chemistry C, 2019, 123, 20567-20578.	3.1	91
14	Anisotropic Polaron Delocalization in Conjugated Homopolymers and Donorâ€“Acceptor Copolymers. Chemistry of Materials, 2019, 31, 7033-7045.	6.7	39
15	Essential States Model for Merocyanine Dye Stacks: Bridging Electronic and Optical Absorption Properties. Journal of Physical Chemistry C, 2019, 123, 18654-18664.	3.1	21
16	Davydov Splitting in Squaraine Dimers. Journal of Physical Chemistry C, 2019, 123, 18734-18745.	3.1	41
17	Non-Kasha Behavior in Quadrupolar Dye Aggregates: The Red-Shifted H-Aggregate. Journal of Physical Chemistry C, 2019, 123, 3203-3215.	3.1	56
18	Correction to â€œNon-Kasha Behavior in Quadrupolar Dye Aggregates: The Red-Shifted H-Aggregateâ€. Journal of Physical Chemistry C, 2019, 123, 30765-30765.	3.1	0

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19	Robust singlet fission in pentacene thin films with tuned charge transfer interactions. Nature Communications, 2018, 9, 954.	12.8	76
20	Expanded Theory of H- and J-Molecular Aggregates: The Effects of Vibronic Coupling and Intermolecular Charge Transfer. Chemical Reviews, 2018, 118, 7069-7163.	47.7	1,033
21	Theory of Nanoscale Organic Cavities: The Essential Role of Vibration-Photon Dressed States. ACS Photonics, 2018, 5, 65-79.	6.6	88
22	Spectral Signatures and Spatial Coherence of Bound and Unbound Polarons in P3HT Films: Theory Versus Experiment. Journal of Physical Chemistry C, 2018, 122, 18048-18060.	3.1	70
23	Unraveling the Effect of Conformational and Electronic Disorder in the Charge Transport Processes of Semiconducting Polymers. Advanced Functional Materials, 2018, 28, 1804142.	14.9	34
24	Molecular Aggregate Photophysics beyond the Kasha Model: Novel Design Principles for Organic Materials. Accounts of Chemical Research, 2017, 50, 341-350.	15.6	441
25	Enhanced Davydov Splitting in Crystals of a Perylene Diimide Derivative. Journal of Physical Chemistry Letters, 2017, 8, 1118-1123.	4.6	37
26	Using coherence to enhance function in chemical and biophysical systems. Nature, 2017, 543, 647-656.	27.8	477
27	Sequential Doping Reveals the Importance of Amorphous Chain Rigidity in Charge Transport of Semi-Crystalline Polymers. Journal of Physical Chemistry Letters, 2017, 8, 4974-4980.	4.6	72
28	The Effects of Crystallinity on Charge Transport and the Structure of Sequentially Processed F₄TCNQâ€Doped Conjugated Polymer Films. Advanced Functional Materials, 2017, 27, 1702654.	14.9	190
29	Absorption and photoluminescence in organic cavity QED. Physical Review A, 2017, 95, .	2.5	84
30	Dark Vibronic Polaritons and the Spectroscopy of Organic Microcavities. Physical Review Letters, 2017, 118, 223601.	7.8	96
31	Polaron Delocalization in Conjugated Polymer Films. Journal of Physical Chemistry C, 2016, 120, 11394-11406.	3.1	79
32	Photophysical Properties of Molecular Aggregates â€œ101â€• Materials and Energy, 2016, , 93-130.	0.1	6
33	Extended-Charge-Transfer Excitons in Crystalline Supramolecular Photocatalytic Scaffolds. Journal of the American Chemical Society, 2016, 138, 11762-11774.	13.7	91
34	Cavity-Controlled Chemistry in Molecular Ensembles. Physical Review Letters, 2016, 116, 238301.	7.8	406
35	Determining the spatial coherence of excitons from the photoluminescence spectrum in charge-transfer J-aggregates. Chemical Physics, 2016, 481, 262-271.	1.9	14
36	Phase separation, crystallinity and monomer-aggregate population control in solution processed small molecule solar cells. Solar Energy Materials and Solar Cells, 2016, 157, 366-376.	6.2	22

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37	Exciton mobility control through<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mtext>sub</mml:mtext><mml:mo>â^'</mml:mo><mml:mi mathvariant="normal">Ã…</mml:mi></mml:math>packing modifications in molecular crystals. Physical Review B, 2015, 91, .	3.2	51
38	Interference between Coulombic and CT-mediated couplings in molecular aggregates: H- to J-aggregate transformation in perylene-based Ï€-stacks. Journal of Chemical Physics, 2015, 143, 244707.	3.0	137
39	Confirmation of the Origins of Panchromatic Spectra in Squaraine Thin Films Targeted for Organic Photovoltaic Devices. Journal of Physical Chemistry C, 2015, 119, 18964-18974.	3.1	59
40	Polarized Absorption in Crystalline Pentacene: Theory vs Experiment. Journal of Physical Chemistry C, 2015, 119, 22137-22147.	3.1	98
41	Optical microcavities enhance the exciton coherence length and eliminate vibronic coupling in J-aggregates. Journal of Chemical Physics, 2015, 142, 184707.	3.0	104
42	Two-dimensional polaron coherence in Poly(3-hexylthiophene). Proceedings of SPIE, 2014, , .	0.8	0
43	New insights on the nature of two-dimensional polarons in semiconducting polymers: Infrared absorption in poly(3-hexylthiophene). Journal of Chemical Physics, 2014, 140, 244902.	3.0	38
44	HJ-Aggregate Behavior of Crystalline 7,8,15,16-Tetraazaterrylene: Introducing a New Design Paradigm for Organic Materials. Journal of Physical Chemistry C, 2014, 118, 28842-28854.	3.1	105
45	H- and J-Aggregate Behavior in Polymeric Semiconductors. Annual Review of Physical Chemistry, 2014, 65, 477-500.	10.8	834
46	Strong Photophysical Similarities between Conjugated Polymers and J-aggregates. Journal of Physical Chemistry Letters, 2014, 5, 622-632.	4.6	68
47	The Effect of Chain Bending on the Photophysical Properties of Conjugated Polymers. Journal of Physical Chemistry B, 2014, 118, 8352-8363.	2.6	51
48	Mapping the Evolution of Spatial Exciton Coherence through Time-Resolved Fluorescence. Journal of Physical Chemistry Letters, 2014, 5, 1505-1510.	4.6	47
49	Two-dimensional spatial coherence of excitons in semicrystalline polymeric semiconductors: Effect of molecular weight. Physical Review B, 2013, 88, .	3.2	96
50	Anatomy of an Exciton: Vibrational Distortion and Exciton Coherence in H- and J-Aggregates. Journal of Physical Chemistry B, 2013, 117, 457-466.	2.6	28
51	Contrasting Photophysical Properties of Star-Shaped vs Linear Perylene Diimide Complexes. Journal of the American Chemical Society, 2013, 135, 3056-3066.	13.7	31
52	Charge-Transfer Excitations Steer the Davydov Splitting and Mediate Singlet Exciton Fission in Pentacene. Physical Review Letters, 2013, 110, 226402.	7.8	253
53	The red-phase of poly[2-methoxy-5-(2-ethylhexyloxy)-1,4-phenylenevinylene] (MEH-PPV): A disordered HJ-aggregate. Journal of Chemical Physics, 2013, 139, 114903.	3.0	58
54	Designing J- and H-Aggregates through Wave Function Overlap Engineering: Applications to Poly(3-hexylthiophene). Journal of Physical Chemistry B, 2012, 116, 14494-14503.	2.6	108

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55	J-Aggregate Behavior in Poly-3-hexylthiophene Nanofibers. Journal of Physical Chemistry Letters, 2012, 3, 259-263.	4.6	258
56	Absorption, Circular Dichroism, and Photoluminescence in Perylene Diimide Bichromophores: Polarization-Dependent H- and J-Aggregate Behavior. Journal of Physical Chemistry B, 2012, 116, 77-86.	2.6	113
57	VIBRONIC COUPLING IN J-AGGREGATES. , 2012, , 49-75.		3
58	Interplay between intrachain and interchain interactions in semiconducting polymer assemblies: The HJ-aggregate model. Journal of Chemical Physics, 2012, 136, 184901.	3.0	234
59	Theory of exciton dynamics in molecular aggregates in presence of polaronic effects. Chemical Physics Letters, 2012, 529, 69-73.	2.6	7
60	The nature of singlet excitons in oligoacene molecular crystals. Journal of Chemical Physics, 2011, 134, 204703.	3.0	233
61	Vibronic Coupling in J-Aggregates and Beyond: A Direct Means of Determining the Exciton Coherence Length from the Photoluminescence Spectrum. Journal of Physical Chemistry B, 2011, 115, 5133-5143.	2.6	186
62	Circularly Polarized Luminescence as a Probe for Long-Range Interactions in Molecular Aggregates. Journal of Physical Chemistry B, 2011, 115, 10592-10603.	2.6	82
63	Vibronic coupling in quantum wires: Applications to polydiacetylene. Journal of Chemical Physics, 2011, 135, 054906.	3.0	54
64	The Spectral Signatures of Frenkel Polarons in H- and J-Aggregates. Accounts of Chemical Research, 2010, 43, 429-439.	15.6	1,336
65	Multiple mode exciton-vibrational coupling in H-aggregates: Synergistic enhancement of the quantum yield. Journal of Chemical Physics, 2010, 132, 094704.	3.0	36
66	Extreme Sensitivity of Circular Dichroism to Long-Range Excitonic Couplings in Helical Supramolecular Assemblies. Journal of Physical Chemistry B, 2010, 114, 817-825.	2.6	28
67	Determining exciton bandwidth and film microstructure in polythiophene films using linear absorption spectroscopy. Applied Physics Letters, 2009, 94, .	3.3	492
68	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
69	Exciton-phonon coupling in molecular crystals: Synergy between two intramolecular vibrational modes in quaterthiophene single crystals. Journal of Chemical Physics, 2009, 130, 234701.	3.0	19
70	â€œHelterâ€Skelterâ€Likeâ€•Perylene Polyisocyanopeptides. Chemistry - A European Journal, 2009, 15, 2536-2547.	5.3	64
71	Optical Spectra and Stokes Shift in Double-Stranded Helical Supramolecular Assemblies. Journal of Physical Chemistry B, 2009, 113, 9708-9717.	2.6	12
72	Analysis of the UV/Vis and CD Spectral Line Shapes of Carotenoid Assemblies: Spectral Signatures of Chiral H-Aggregates. Journal of the American Chemical Society, 2009, 131, 4267-4278.	13.7	117

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73	Using circularly polarized luminescence to probe exciton coherence in disordered helical aggregates. Journal of Chemical Physics, 2008, 129, 024704.	3.0	24
74	Experimental and theoretical study of temperature dependent exciton delocalization and relaxation in anthracene thin films. Journal of Chemical Physics, 2008, 128, 054505.	3.0	88
75	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
76	Multiple Mode Excitonâ^'Phonon Coupling:â€‰ Applications to Photoluminescence in Oligothiophene Thin Films. Journal of Physical Chemistry C, 2007, 111, 6113-6123.	3.1	35
77	Reclassifying exciton-phonon coupling in molecular aggregates: Evidence of strong nonadiabatic coupling in oligothiophene crystals. Journal of Chemical Physics, 2007, 127, 184703.	3.0	46
78	Probing Excitation Delocalization in Supramolecular Chiral Stacks by Means of Circularly Polarized Light:â€‰ Experiment and Modeling. Journal of the American Chemical Society, 2007, 129, 7044-7054.	13.7	112
79	EXCITONS IN CONJUGATED OLIGOMER AGGREGATES, FILMS, AND CRYSTALS. Annual Review of Physical Chemistry, 2006, 57, 217-243.	10.8	304
80	Absorption in regio-regular poly(3-hexyl)thiophene thin films: Fermi resonances, interband coupling and disorder. Chemical Physics, 2006, 325, 22-35.	1.9	195
81	Temperature-dependent emission in disordered herringbone aggregates: stacking faults and point defects. Journal of Luminescence, 2005, 112, 395-401.	3.1	6
82	Designing molecular eigenstates in a four-levelÎ›system. Physical Review A, 2005, 71, .	2.5	6
83	Vibronic fine structure in the absorption spectrum of oligothiophene thin films. Journal of Chemical Physics, 2005, 122, 114701.	3.0	53
84	Modeling disorder in polymer aggregates: The optical spectroscopy of regioregular poly(3-hexylthiophene) thin films. Journal of Chemical Physics, 2005, 122, 234701.	3.0	545
85	Temperature-dependent emission in disordered herringbone aggregates of conjugated oligomers. Physical Review B, 2005, 71, .	3.2	22
86	Temperature dependent exciton emission from herringbone aggregates of conjugated oligomers. Journal of Chemical Physics, 2004, 120, 7643-7658.	3.0	59
87	Analysis of the vibronic fine structure in circularly polarized emission spectra from chiral molecular aggregates. Journal of Chemical Physics, 2004, 120, 10594-10604.	3.0	38
88	Exciton Delocalization and Superradiance in Tetracene Thin Films and Nanoaggregates. Physical Review Letters, 2004, 92, 107402.	7.8	228
89	The fundamental photophysics of conjugated oligomer herringbone aggregates. Journal of Chemical Physics, 2003, 118, 981-994.	3.0	110
90	Absorption and emission in oligo-phenylene vinylene nanoaggregates: The role of disorder and structural defects. Journal of Chemical Physics, 2002, 116, 5877-5891.	3.0	160

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91	Prospects for All-Optical Alignment and Quantum State Control of Nonpolar Molecules. ACS Symposium Series, 2002, , 304-319.	0.5	0
92	Absorption and emission in pinwheel aggregates of oligo-phenylene vinylene molecules. Journal of Chemical Physics, 2001, 114, 5376-5390.	3.0	52
93	Emission from aggregates of oligo-phenylene vinylenes: a recipe for superradiant H-aggregates. Chemical Physics Letters, 2000, 331, 7-13.	2.6	63
94	Autler-Townes Splitting in Molecular Lithium: Prospects for All-Optical Alignment of Nonpolar Molecules. Physical Review Letters, 1999, 83, 288-291.	7.8	104
95	Absorption and spontaneous emission in aggregates of conjugated polymers. Journal of Chemical Physics, 1998, 109, 8087-8101.	3.0	84
96	Spontaneous emission and absorption in model aggregates of Ï€-conjugated oligomers. Journal of Chemical Physics, 1997, 107, 8152-8164.	3.0	32
97	Radiative Decay of Excitons in Model Aggregates of Ï€-Conjugated Oligomers. Materials Research Society Symposia Proceedings, 1997, 488, 277.	0.1	1
98	Theory of Pump-Probe Spectroscopy of Molecular J-Aggregates. , 1996, , 111-160.		23
99	Frenkel Biexcitons in 1D J-aggregates. Materials Research Society Symposia Proceedings, 1995, 413, 257.	0.1	0
100	Theory of coherent transient spectroscopy in molecular aggregates: The effects of interacting excitons. Journal of Chemical Physics, 1995, 103, 5939-5955.	3.0	27
101	Unusual Behavior of Two-Photon Absorption from Three-Level Molecules in a One-Dimensional Lattice. Physical Review Letters, 1995, 74, 2780-2783.	7.8	47
102	Nonlinear optical response of oneâ€dimensional molecular crystals: Breakdown of the local field approximation. Journal of Chemical Physics, 1992, 96, 8109-8116.	3.0	20
103	WEAK FIELD NONLINEAR OPTICAL RESPONSE OF FERMIONS IN FRENKEL EXCITON CHAINS. International Journal of Modern Physics B, 1992, 06, 3441-3467.	2.0	1
104	Reply to the Comment on: Is multiple quantum nuclear magnetic resonance of water real?. Journal of Chemical Physics, 1992, 96, 1659-1661.	3.0	38
105	Coherence Domains in the Radiative Dynamics of Molecular Aggregates. Molecular Crystals and Liquid Crystals, 1991, 194, 331-336.	0.7	9
106	Superradiance in molecular aggregates. Journal of Chemical Physics, 1989, 91, 683-700.	3.0	260
107	Understanding Bipolarons in Conjugated Polymers Using a Multiparticle Holstein Approach. Journal of Physical Chemistry C, 0, , .	3.1	14