Sunghyun Kim

List of Publications by Year
in descending order

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30	1,371	471371 17	454834 30
papers	citations	h-index	g-index

32	32	32	2171
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Ab initio calculation of the detailed balance limit to the photovoltaic efficiency of single p-n junction kesterite solar cells. Applied Physics Letters, 2021, 118, .	1.5	7
2	Giant Huangâ€“Rhys Factor for Electron Capture by the Iodine Intersitial in Perovskite Solar Cells. Journal of the American Chemical Society, 2021, 143, 9123-9128.	6.6	37
3	Low Barrier for Exciton Self-Trapping Enables High Photoluminescence Quantum Yield in Cs₃Cu₂I₅. Journal of Physical Chemistry Letters, 2021, 12, 8447-8452.	2.1	16
4	Assessing the defect tolerance of kesterite-inspired solar absorbers. Energy and Environmental Science, 2020, 13, 3489-3503.	15.6	28
5	Upper limit to the photovoltaic efficiency of imperfect crystals from first principles. Energy and Environmental Science, 2020, 13, 1481-1491.	15.6	107
6	Quick-start guide for first-principles modelling of point defects in crystalline materials. JPhys Energy, 2020, 2, 036001.	2.3	22
7	CarrierCapture.jl: Anharmonic Carrier Capture. Journal of Open Source Software, 2020, 5, 2102.	2.0	14
8	Intrinsic doping limit and defect-assisted luminescence in Cs₄PbBr₆. Journal of Materials Chemistry A, 2019, 7, 20254-20261.	5.2	48
9	Anharmonic lattice relaxation during nonradiative carrier capture. Physical Review B, 2019, 100, .	1.1	34
10	Crystal Engineering of Bi₂WO₆ to Polar Aurivillius-Phase Oxyhalides. Journal of Physical Chemistry C, 2019, 123, 29155-29161.	1.5	12
11	In situ observation of picosecond polaron self-localisation in Î±-Fe2O3 photoelectrochemical cells. Nature Communications, 2019, 10, 3962.	5.8	93
12	Lone-pair effect on carrier capture in Cu₂ZnSnS₄solar cells. Journal of Materials Chemistry A, 2019, 7, 2686-2693.	5.2	55
13	Promotion of electrochemical oxygen evolution reaction by chemical coupling of cobalt to molybdenum carbide. Applied Catalysis B: Environmental, 2018, 227, 340-348.	10.8	110
14	Identification of Killer Defects in Kesterite Thin-Film Solar Cells. ACS Energy Letters, 2018, 3, 496-500.	8.8	130
15	Open-circuit voltage deficit in Cu2ZnSnS4 solar cells by interface bandgap narrowing. Applied Physics Letters, 2018, 113, 212103.	1.5	16
16	Stability and electronic properties of planar defects in quaternary I2-II-IV-VI4 semiconductors. Journal of Applied Physics, 2018, 124, 165705.	1.1	5
17	Point defect engineering in thin-film solar cells. Nature Reviews Materials, 2018, 3, 194-210.	23.3	275
18	Role of electron-phonon coupling and thermal expansion on band gaps, carrier mobility, and interfacial offsets in kesterite thin-film solar cells. Applied Physics Letters, 2018, 112, .	1.5	19

#	Article	IF	Citations
19	Opposing effects of stacking faults and antisite domain boundaries on the conduction band edge in kesterite quaternary semiconductors. Physical Review Materials, 2018, 2, .	0.9	15
20	Semimetallic carbon allotrope with a topological nodal line in mixed sp2-sp3 bonding networks. NPG Asia Materials, 2017, 9, e361-e361.	3.8	18
21	Prediction of Green Phosphorus with Tunable Direct Band Gap and High Mobility. Journal of Physical Chemistry Letters, 2017, 8, 4627-4632.	2.1	101
22	Boron Triangular Kagome Lattice with Half-Metallic Ferromagnetism. Scientific Reports, 2017, 7, 7279.	1.6	14
23	Three-dimensional buckled honeycomb boron lattice with vacancies as an intermediate phase on the transition pathway from Î±-B to Î³-B. NPG Asia Materials, 2017, 9, e400-e400.	3.8	4
24	Direct band gap carbon superlattices with efficient optical transition. Physical Review B, 2016, 93, .	1.1	12
25	Design of Dipole-Allowed Direct Band Gaps in Ge/Sn Coreâ€“Shell Nanowires. Journal of Physical Chemistry C, 2016, 120, 28169-28175.	1.5	1
26	Ab initio materials design using conformational space annealing and its application to searching for direct band gap silicon crystals. Computer Physics Communications, 2016, 203, 110-121.	3.0	55
27	Dipole-allowed direct band gap silicon superlattices. Scientific Reports, 2015, 5, 18086.	1.6	37
28	Finite-size supercell correction scheme for charged defects in one-dimensional systems. Physical Review B, 2014, 90, .	1.1	4
29	Computational search for direct band gap silicon crystals. Physical Review B, 2014, 90, .	1.1	63
30	Stability and Segregation of B and P Dopants in Si/SiO₂ Coreâ€“Shell Nanowires. Nano Letters, 2012, 12, 5068-5073.	4.5	19