Gwan-Hyoung Lee

List of Publications by Year
in descending order

111 papers	14,868 citations	70961 41 h-index	25716 108 g-index
115 all docs	115 docs citations	115 times ranked	18283 citing authors

#	Article	IF	Citations
1	Tightly bound trions in monolayer MoS2. Nature Materials, 2013, 12, 207-211.	13.3	2,329
2	Atomically thin pâ€“n junctions with van der Waals heterointerfaces. Nature Nanotechnology, 2014, 9, 676-681.	15.6	1,953
3	Grains and grain boundaries in highly crystalline monolayer molybdenum disulphide. Nature Materials, 2013, 12, 554-561.	13.3	1,896
4	Multi-terminal transport measurements of MoS2 using a van der Waals heterostructure device platform. Nature Nanotechnology, 2015, 10, 534-540.	15.6	1,099
5	Flexible and Transparent MoS₂ Field-Effect Transistors on Hexagonal Boron Nitride-Graphene Heterostructures. ACS Nano, 2013, 7, 7931-7936.	7.3	947
6	High-Strength Chemical-Vaporâ€“Deposited Graphene and Grain Boundaries. Science, 2013, 340, 1073-1076.	6.0	753
7	Controlled charge trapping by molybdenum disulphide and graphene in ultrathin heterostructured memory devices. Nature Communications, 2013, 4, 1624.	5.8	595
8	Effect of defects on the intrinsic strength and stiffness of graphene. Nature Communications, 2014, 5, 3186.	5.8	560
9	Electron tunneling through atomically flat and ultrathin hexagonal boron nitride. Applied Physics Letters, 2011, 99, .	1.5	425
10	Highly Stable, Dual-Gated MoS₂ Transistors Encapsulated by Hexagonal Boron Nitride with Gate-Controllable Contact, Resistance, and Threshold Voltage. ACS Nano, 2015, 9, 7019-7026.	7.3	331
11	Measurement of Lateral and Interfacial Thermal Conductivity of Single- and Bilayer MoS₂ and MoSe₂ Using Refined Optothermal Raman Technique. ACS Applied Materials & Interfaces, 2015, 7, 25923-25929.	4.0	275
12	Graphene mechanical oscillators with tunable frequency. Nature Nanotechnology, 2013, 8, 923-927.	15.6	259
13	Graphene based heterostructures. Solid State Communications, 2012, 152, 1275-1282.	0.9	184
14	2D semiconducting materials for electronic and optoelectronic applications: potential and challenge. 2D Materials, 2020, 7, 022003.	2.0	168
15	Tunable Electrical and Optical Characteristics in Monolayer Graphene and Few-Layer MoS₂ Heterostructure Devices. Nano Letters, 2015, 15, 5017-5024.	4.5	150
16	Effect of surface morphology on friction of graphene on various substrates. Nanoscale, 2013, 5, 3063.	2.8	148
17	Thickness-dependent Schottky barrier height of MoS₂field-effect transistors. Nanoscale, 2017, 9, 6151-6157.	2.8	120
18	Homogeneous 2D MoTe₂ pâ€“n Junctions and CMOS Inverters formed by Atomicâ€Layerâ€Depositionâ€Induced Doping. Advanced Materials, 2017, 29, 1701798.	11.1	117

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19	Two-Dimensional Semiconductor Optoelectronics Based on van der Waals Heterostructures. Nanomaterials, 2016, 6, 193.	1.9	107
20	Inking Elastomeric Stamps with Microâ€Patterned, Single Layer Graphene to Create Highâ€Performance OFETs. Advanced Materials, 2011, 23, 3531-3535.	11.1	100
21	Mechanical properties of two-dimensional materials and their applications. Journal Physics D: Applied Physics, 2019, 52, 083001.	1.3	97
22	Effect of local environment and Sm3+-codoping on the luminescence properties in the Eu3+-doped potassium tungstate phosphor for white LEDS. Journal of Luminescence, 2008, 128, 1922-1926.	1.5	83
23	Sintering of nano-sized WCâ€“Co powders produced by a gas reductionâ€“carburization process. Journal of Alloys and Compounds, 2006, 419, 281-289.	2.8	77
24	Horizontal-to-Vertical Transition of 2D Layer Orientation in Low-Temperature Chemical Vapor Deposition-Grown PtSe₂ and Its Influences on Electrical Properties and Device Applications. ACS Applied Materials & Interfaces, 2019, 11, 13598-13607.	4.0	77
25	Artificial Neuron and Synapse Devices Based on 2D Materials. Small, 2021, 17, e2100640.	5.2	75
26	Gateâ€Tunable Hole and Electron Carrier Transport in Atomically Thin Dualâ€Channel WSe₂/MoS₂ Heterostructure for Ambipolar Fieldâ€Effect Transistors. Advanced Materials, 2016, 28, 9519-9525.	11.1	70
27	Growth and Phase Transformation of Nanometerâ€Sized Titanium Oxide Powders Produced by the Precipitation Method. Journal of the American Ceramic Society, 2004, 87, 473-479.	1.9	68
28	Electrically integrated SU-8 clamped graphene drum resonators for strain engineering. Applied Physics Letters, 2013, 102, 153101.	1.5	67
29	Artificial Synaptic Emulators Based on MoS₂ Flash Memory Devices with Double Floating Gates. ACS Applied Materials & Interfaces, 2018, 10, 31480-31487.	4.0	66
30	Organic Field Effect Transistors Based on Graphene and Hexagonal Boron Nitride Heterostructures. Advanced Functional Materials, 2014, 24, 5157-5163.	7.8	64
31	Effective Separation of CO₂ Using Metalâ€Incorporated rGO Membranes. Advanced Materials, 2020, 32, e1907580.	11.1	63
32	Multifunctional Two-Dimensional PtSe₂-Layer Kirigami Conductors with 2000% Stretchability and Metallic-to-Semiconducting Tunability. Nano Letters, 2019, 19, 7598-7607.	4.5	59
33	Heterostructures based on inorganic and organic van der Waals systems. APL Materials, 2014, 2, .	2.2	57
34	Atomically precise graphene etch stops for three dimensional integrated systems from two dimensional material heterostructures. Nature Communications, 2018, 9, 3988.	5.8	56
35	An aptameric graphene nanosensor for label-free detection of small-molecule biomarkers. Biosensors and Bioelectronics, 2015, 71, 222-229.	5.3	53
36	Noble metal-coated MoS2 nanofilms with vertically-aligned 2D layers for visible light-driven photocatalytic degradation of emerging water contaminants. Scientific Reports, 2017, 7, 14944.	1.6	51

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37	Thickness-Independent Semiconducting-to-Metallic Conversion in Wafer-Scale Two-Dimensional PtSe₂ Layers by Plasma-Driven Chalcogen Defect Engineering. ACS Applied Materials & Interfaces, 2020, 12, 14341-14351.	4.0	51
38	Lattice Strain Formation through Spinâ€Coupled Shells of MoS₂ on Mo₂C for Bifunctional Oxygen Reduction and Oxygen Evolution Reaction Electrocatalysts. Advanced Materials Interfaces, 2019, 6, 1900948.	1.9	50
39	Laser-induced superhydrophobic grid patterns on PDMS for droplet arrays formation. Applied Surface Science, 2017, 396, 359-365.	3.1	48
40	Electrically Conducting and Mechanically Strong Grapheneâ€“Polylactic Acid Composites for 3D Printing. ACS Applied Materials & Interfaces, 2019, 11, 11841-11848.	4.0	46
41	Studies in crystal structure and luminescence properties of Eu3+-doped metal tungstate phosphors for white LEDs. Journal of Luminescence, 2011, 131, 2606-2611.	1.5	44
42	Two-Dimensional Near-Atom-Thickness Materials for Emerging Neuromorphic Devices and Applications. IScience, 2020, 23, 101676.	1.9	44
43	Hydrogen generation via photoelectrochemical water splitting using chemically exfoliated MoS2 layers. AIP Advances, 2016, 6, .	0.6	41
44	Ferroelectricâ€Polymerâ€Enabled Contactless Electric Power Generation in Triboelectric Nanogenerators. Advanced Functional Materials, 2019, 29, 1905816.	7.8	41
45	Tuning the thickness of black phosphorus via ion bombardment-free plasma etching for device performance improvement. Journal of Materials Chemistry C, 2016, 4, 6234-6239.	2.7	38
46	van der Waals epitaxial growth of single crystal Î± -MoO ₃ layers on layered materials growth templates. 2D Materials, 2019, 6, 015016.	2.0	33
47	Monolithic Interface Contact Engineering to Boost Optoelectronic Performances of 2D Semiconductor Photovoltaic Heterojunctions. Nano Letters, 2020, 20, 2443-2451.	4.5	31
48	Blu-ray based optomagnetic aptasensor for detection of small molecules. Biosensors and Bioelectronics, 2016, 75, 396-403.	5.3	29
49	Enhanced Photoluminescence of Multiple Two-Dimensional van der Waals Heterostructures Fabricated by Layer-by-Layer Oxidation of MoS₂. ACS Applied Materials & Interfaces, 2021, 13, 1245-1252.	4.0	28
50	High-performance monolayer MoS2 field-effect transistor with large-scale nitrogen-doped graphene electrodes for Ohmic contact. Applied Physics Letters, 2019, 115, .	1.5	27
51	Solid-solution red phosphors for white LEDs. Journal of Luminescence, 2011, 131, 2582-2588.	1.5	26
52	Atomic scale study of black phosphorus degradation. RSC Advances, 2020, 10, 350-355.	1.7	25
53	Epitaxially Selfâ€Assembled Alkane Layers for Graphene Electronics. Advanced Materials, 2017, 29, 1603925.	11.1	24
54	Recent Progresses in the Growth of Two-dimensional Transition Metal Dichalcogenides. Journal of the Korean Ceramic Society, 2019, 56, 24-36.	1.1	24

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55	Ethanol-CVD Growth of Sub-mm Single-Crystal Graphene on Flat Cu Surfaces. Journal of Physical Chemistry C, 2018, 122, 28830-28838.	1.5	23
56	Tailoring Surface Properties via Functionalized Hydrofluorinated Graphene Compounds. Advanced Materials, 2019, 31, e1903424.	11.1	23
57	Microwave-welded single-walled carbon nanotubes as suitable electrodes for triboelectric energy harvesting from biomaterials and bioproducts. Nano Energy, 2019, 56, 338-346.	8.2	23
58	Evolution of defect formation during atomically precise desulfurization of monolayer MoS2. Communications Materials, 2021, 2, .	2.9	23
59	In situ thickness control of black phosphorus field-effect transistors via ozone treatment. Nano Research, 2016, 9, 3056-3065.	5.8	22
60	Direct observation of grain boundaries in chemical vapor deposited graphene. Carbon, 2017, 115, 147-153.	5.4	22
61	All-2D ReS2 transistors with split gates for logic circuitry. Scientific Reports, 2019, 9, 10354.	1.6	22
62	Thickness-Insensitive Properties of Î±-MoO₃ Nanosheets by Weak Interlayer Coupling. Nano Letters, 2019, 19, 8868-8876.	4.5	21
63	Tunable Wettability of Graphene through Nondestructive Hydrogenation and Wettability-Based Patterning for Bioapplications. Nano Letters, 2020, 20, 5625-5631.	4.5	21
64	Recent trends in covalent functionalization of 2D materials. Physical Chemistry Chemical Physics, 2022, 24, 10684-10711.	1.3	20
65	Graphene Metallization of High-Stress Silicon Nitride Resonators for Electrical Integration. Nano Letters, 2013, 13, 4275-4279.	4.5	19
66	Singleâ€Crystalline Nanobelts Composed of Transition Metal Ditellurides. Advanced Materials, 2018, 30, e1707260.	11.1	18
67	A Controlled Carburization Process to Obtain Grapheneâ€“Fe₃Câ€“Fe Composites. Advanced Materials Interfaces, 2018, 5, 1800599.	1.9	17
68	TEM observation of growth and phase transformation in nanometer-sized titanium oxide powder. Journal of Materials Science, 2011, 46, 1780-1788.	1.7	15
69	Highly flexible graphene nanoplatelet-polydimethylsiloxane strain sensors with proximity-sensing capability. Materials Research Express, 2020, 7, 045603.	0.8	15
70	Interactions between Primary Neurons and Graphene Films with Different Structure and Electrical Conductivity. Advanced Functional Materials, 2021, 31, 2005300.	7.8	15
71	Effect of Cryomilling on Particle Size and Microstrain in a WC-Co Alloy. Materials Transactions, 2005, 46, 105-110.	0.4	14
72	Tailoring Single- and Double-Sided Fluorination of Bilayer Graphene via Substrate Interactions. Nano Letters, 2021, 21, 891-898.	4.5	14

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73	Anomalous Dimensionalityâ€Driven Phase Transition of MoTe₂ in Van der Waals Heterostructure. Advanced Functional Materials, 2021, 31, 2107376.	7.8	14
74	STEM Image Analysis Based on Deep Learning: Identification of Vacancy Defects and Polymorphs of MoS₂. Nano Letters, 2022, 22, 4677-4685.	4.5	14
75	Growth of ultrafine Ti(CN) particles in Ti(CN)â€“Ni cermets. Scripta Materialia, 2007, 56, 133-136.	2.6	13
76	Role of flux in the production process of red phosphors for white LEDs. Journal of Materials Science, 2008, 43, 6109-6115.	1.7	12
77	Recovery of the Pristine Surface of Black Phosphorus by Water Rinsing and Its Device Application. ACS Applied Materials & Interfaces, 2017, 9, 21382-21389.	4.0	12
78	Multioperationâ€Mode Lightâ€Emitting Fieldâ€Effect Transistors Based on van der Waals Heterostructure. Advanced Materials, 2020, 32, e2003567.	11.1	12
79	Hydrogenated Graphene Improves Neuronal Network Maturation and Excitatory Transmission. Advanced Biology, 2021, 5, e2000177.	1.4	12
80	Tailored Hydrogen-Free Carbon Films by Tuning the sp²/sp³ Configuration. ACS Applied Electronic Materials, 2021, 3, 1771-1779.	2.0	12
81	Processing Issues for Cryomilled WC-Co Nanopowders. Materials Transactions, 2003, 44, 1935-1941.	0.4	11
82	Scaling and mechanism of droplet array formation on a laser-ablated superhydrophobic grid. Colloids and Surfaces A: Physicochemical and Engineering Aspects, 2018, 547, 49-55.	2.3	11
83	Rolling up two-dimensional sheets into nanoscrolls. FlatChem, 2018, 7, 26-33.	2.8	11
84	Large-Scale Self-Limiting Synthesis of Monolayer MoS₂ via Proximity Evaporation from Mo Films. Crystal Growth and Design, 2020, 20, 2698-2705.	1.4	11
85	Atomicâ€“layerâ€“confined multiple quantum wells enabled by monolithic bandgap engineering of transition metal dichalcogenides. Science Advances, 2021, 7, .	4.7	11
86	Synthesis of Nano-Sized WC-Co Powders by Reduction-Carburization Process. Materials Transactions, 2001, 42, 1575-1581.	0.4	10
87	Quantitative analysis of improved bending fracture behavior of large-scale graphene monolayer-intervened flexible oxide thin films. Journal of Materials Chemistry C, 2018, 6, 6125-6131.	2.7	10
88	Effect of pH and Lattice Distortion on the Luminescence of (Y,Gd)BO[sub 3]:Eu[sup 3+] Phosphor Prepared by the Coprecipitation Method. Journal of the Electrochemical Society, 2006, 153, H105.	1.3	9
89	Modulation of optical and electrical properties in hexagonal boron nitride by defects induced via oxygen plasma treatment. 2D Materials, 2021, 8, 045041.	2.0	9
90	Substrate effect on doping and degradation of graphene. Carbon, 2021, 184, 651-658.	5.4	8

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91	Ambipolar Memristive Phenomenon in Largeâ€Scale, Fewâ€Layered Î±MoO₃ Recrystallized Films. Advanced Materials Interfaces, 2019, 6, 1801591.	1.9	7
92	Quasi-static secondary flow regions formed by microfluidic contraction flows of wormlike micellar solutions. Physics of Fluids, 2021, 33, 093112.	1.6	7
93	Vertically grown nanowire crystals of dibenzotetrathienocoronene (DBTTC) on large-area graphene. RSC Advances, 2016, 6, 59582-59589.	1.7	6
94	Single-Crystalline Metallic Films Induced by van der Waals Epitaxy on Black Phosphorus. Chemistry of Materials, 2021, 33, 3593-3601.	3.2	6
95	Graphene Via Contact Architecture for Vertical Integration of vdW Heterostructure Devices. Small, 2022, 18, .	5.2	6
96	Phonon-assisted carrier transport through a lattice-mismatched interface. NPG Asia Materials, 2019, 11, .	3.8	5
97	Fluorinated Graphene Contacts and Passivation Layer for MoS₂ Field Effect Transistors. Advanced Electronic Materials, 2022, 8, .	2.6	5
98	Band Structure Engineering of WSe₂ Homoâ€Junction Interfaces via Thickness Control. Advanced Materials Interfaces, 2022, 9, .	1.9	4
99	Nanocrystalline graphene for ultrasensitive surface-enhanced Raman spectroscopy. Applied Surface Science, 2022, 599, 154035.	3.1	4
100	Adjacent assembly of self-assembled monolayers for the construction of selective bio-platforms. Sensors and Actuators B: Chemical, 2011, 159, 75-81.	4.0	3
101	Electrical Modulation of Exciton Complexes in Light-Emitting Tunnel Transistors of a van der Waals Heterostructure. ACS Photonics, 2021, 8, 3455-3461.	3.2	3
102	Modulation of electrical properties in MoTe₂by XeF₂-mediated surface oxidation. Nanoscale Advances, 2022, 4, 1191-1198.	2.2	3
103	Improved Crystallinity of Graphene Grown on Cu/Ni (111) through Sequential Mobile Hot-Wire Heat Treatment. Nano Letters, 2022, 22, 5198-5206.	4.5	3
104	Luminescence of Eu3+and Sm3+Doped Potassium Tungstate Phosphor. Journal of Information Display, 2005, 6, 25-29.	2.1	1
105	No Tilt Angle Dependence of Grain Boundary on Mechanical Strength of Chemically Deposited Graphene Film. Journal of the Korean Ceramic Society, 2019, 56, 506-512.	1.1	1
106	Near ultraviolet light emission in hexagonal boron nitride based van der Waals heterostructures. , 2019, , .		1
107	Pulsed Laser Ablation on Polymethylmethacrylate (PMMA) Surfaces for Capillary Driven Flows. Surfaces and Interfaces, 2022, 31, 101989.	1.5	1
108	18.5: Efficient Tandem White OLED Devices for Medical Display Applications. Digest of Technical Papers SID International Symposium, 2010, 41, 261.	0.1	0

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109	Neuronal Networks: Interactions between Primary Neurons and Graphene Films with Different Structure and Electrical Conductivity (Adv. Funct. Mater. 11/2021). Advanced Functional Materials, 2021, 31, 2170075.	7.8	0
110	Neuromorphic Devices: Artificial Neuron and Synapse Devices Based on 2D Materials (Small 20/2021). Small, 2021, 17, 2170092.	5.2	0
111	(Invited) Two-Dimensional Wide Bandgap Materials for Electronic Applications. ECS Meeting Abstracts, 2018, , .	0.0	0