Jani Kotakoski

List of Publications by Year
in descending order

145	11,842	48	107
papers	citations	h-index	g-index
		43973	26548

153	153	153	13952
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Two-step implantation of gold into graphene. 2D Materials, 2022, 9, 025011.	2.0	10
2	Toward Exotic Layered Materials: 2D Cuprous Iodide. Advanced Materials, 2022, 34, e2106922.	11.1	28
3	Beam-driven dynamics of aluminium dopants in graphene. 2D Materials, 2022, 9, 035009.	2.0	8
4	Indirect measurement of the carbon adatom migration barrier on graphene. Carbon, 2022, 196, 596-601.	5.4	7
5	Three-dimensional <i>ab initio</i> description of vibration-assisted electron knock-on displacements in graphene. Physical Review B, 2022, 105, .	1.1	4
6	Atomic and electronic structure of graphene. , 2021, , 15-26.		1
7	Stepâ€Byâ€Step Atomic Insights into Structural Reordering from 2D to 3D MoS 2. Advanced Functional Materials, 2021, 31, 2008395.	7.8	9
8	Highly efficient bilateral doping of single-walled carbon nanotubes. Journal of Materials Chemistry C, 2021, 9, 4514-4521.	2.7	17
9	The morphology of doubly-clamped graphene nanoribbons. 2D Materials, 2021, 8, 025035.	2.0	1
10	Direct visualization of local deformations in suspended few-layer graphene membranes by coupled in situ atomic force and scanning electron microscopy. Applied Physics Letters, 2021, 118, 103104.	1.5	3
11	Chemistry at graphene edges in the electron microscope. 2D Materials, 2021, 8, 035023.	2.0	14
12	Atomic-Level Structural Engineering of Graphene on a Mesoscopic Scale. Nano Letters, 2021, 21, 5179-5185.	4.5	24
13	Single indium atoms and few-atom indium clusters anchored onto graphene via silicon heteroatoms. Microscopy and Microanalysis, 2021, 27, 3346-3347.	0.2	0
14	Temperature-dependent displacement cross section of graphene and its impurities: measuring the carbon adatom migration barrier. Microscopy and Microanalysis, 2021, 27, 3340-3340.	0.2	0
15	Single Indium Atoms and Few-Atom Indium Clusters Anchored onto Graphene via Silicon Heteroatoms. ACS Nano, 2021, 15, 14373-14383.	7.3	19
16	Carbon Nano-onions: Potassium Intercalation and Reductive Covalent Functionalization. Journal of the American Chemical Society, 2021, 143, 18997-19007.	6.6	15
17	Hybrid Lowâ€Dimensional Carbon Allotropes Formed in Gas Phase. Advanced Functional Materials, 2020, 30, 2005016.	7.8	11
18	Quantitative Measurement and Utilization of Electron Irradiation Effects in 2D Materials. Microscopy and Microanalysis, 2020, 26, 166-166.	0.2	0

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19	Atomic-Scale Carving of Nanopores into a van der Waals Heterostructure with Slow Highly Charged Ions. ACS Nano, 2020, 14, 10536-10543.	7.3	22
20	Energy deposition of highly charged ions transmitted through single layer MoS2. Journal of Physics: Conference Series, 2020, 1412, 162018.	0.3	0
21	Cluster Superlattice Membranes. ACS Nano, 2020, 14, 13629-13637.	7.3	6
22	Diffraction of 80 eV hydrogen through suspended graphene. Journal of Physics: Conference Series, 2020, 1412, 202036.	0.3	0
23	Atomistic Understanding of Damage and Beam-driven Dynamics in 2D Materials. Microscopy and Microanalysis, 2020, 26, 542-543.	0.2	0
24	Transformation and Evaporation of Surface Adsorbents on a Graphene â€œHot Plateâ€ ACS Applied Materials & Interfaces, 2020, 12, 26313-26319.	4.0	3
25	Scalable growth of single-walled carbon nanotubes with a highly uniform structure. Nanoscale, 2020, 12, 12263-12267.	2.8	22
26	Process Pathway Controlled Evolution of Phase and Vanâ€derâ€Waals Epitaxy in In/In₂O₃ on Graphene Heterostructures. Advanced Functional Materials, 2020, 30, 2003300.	7.8	9
27	Vanishing influence of the band gap on the charge exchange of slow highly charged ions in freestanding single-layer <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:msub><mml:mi>MoS</mml:mi><mml:mn>2</mml:mn></mml:msub></m Physical Review B, 2020, 102, .	1.1	15
28	CuAu, a hexagonal two-dimensional metal. 2D Materials, 2020, 7, 045017.	2.0	11
29	2D Noble Gas Crystals Encapsulated in Few-layer Graphene. Microscopy and Microanalysis, 2020, 26, 1086-1089.	0.2	3
30	Kiruna-Type Ore as a Novel Precursor for Large-Scale Production of Small Uniform Iron Oxide Nanoparticles. Journal of Nanoscience and Nanotechnology, 2020, 20, 6525-6531.	0.9	0
31	Coherent diffraction of hydrogen through the 246 pm lattice of graphene. New Journal of Physics, 2019, 21, 033004.	1.2	15
32	Silicon Substitution in Monolayer Hexagonal Boron Nitride. Microscopy and Microanalysis, 2019, 25, 2082-2083.	0.2	0
33	Electronâ€Beam Manipulation of Silicon Impurities in Singleâ€Walled Carbon Nanotubes. Advanced Functional Materials, 2019, 29, 1901327.	7.8	14
34	Direct imaging of light-element impurities in graphene reveals triple-coordinated oxygen. Nature Communications, 2019, 10, 4570.	5.8	39
35	Electron-Beam Manipulation of Lattice Impurities in Graphene and Single-Walled Carbon Nanotubes. Microscopy and Microanalysis, 2019, 25, 938-939.	0.2	0
36	Patterned Ultra-Thin Gold Nanostructures on Graphene. Microscopy and Microanalysis, 2019, 25, 1530-1531.	0.2	2

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37	Substitutional Si impurities in monolayer hexagonal boron nitride. Applied Physics Letters, 2019, 115, .	1.5	16
38	Quantifying Elastic and Inelastic Electron Irradiation Damage in Transmission Electron Microscopy of 2D Materials. Microscopy and Microanalysis, 2019, 25, 454-455.	0.2	1
39	Atomic-scale Chemical Manipulation of Materials in the Scanning Transmission Electron Microscope under Controlled Atmospheres. Microscopy and Microanalysis, 2019, 25, 1398-1399.	0.2	0
40	Substitutional Si Doping of Graphene and Nanotubes through Ion Irradiation-Induced Vacancies. Microscopy and Microanalysis, 2019, 25, 1574-1575.	0.2	0
41	Enhanced Tunneling in a Hybrid of Single-Walled Carbon Nanotubes and Graphene. ACS Nano, 2019, 13, 11522-11529.	7.3	23
42	Influence of temperature on the displacement threshold energy in graphene. Scientific Reports, 2019, 9, 12981.	1.6	12
43	Direct visualization of the 3D structure of silicon impurities in graphene. Applied Physics Letters, 2019, 114, .	1.5	15
44	Engineering single-atom dynamics with electron irradiation. Science Advances, 2019, 5, eaav2252.	4.7	61
45	Quantifying transmission electron microscopy irradiation effects using two-dimensional materials. Nature Reviews Physics, 2019, 1, 397-405.	11.9	79
46	Scanning transmission electron microscopy under controlled low-pressure atmospheres. Ultramicroscopy, 2019, 203, 76-81.	0.8	24
47	Silicon Substitution in Nanotubes and Graphene via Intermittent Vacancies. Journal of Physical Chemistry C, 2019, 123, 13136-13140.	1.5	27
48	Efficient first principles simulation of electron scattering factors for transmission electron microscopy. Ultramicroscopy, 2019, 197, 16-22.	0.8	29
49	Perforating Freestanding Molybdenum Disulfide Monolayers with Highly Charged Ions. Journal of Physical Chemistry Letters, 2019, 10, 904-910.	2.1	42
50	Atomic Structure of Intrinsic and Electron-Irradiation-Induced Defects in MoTe₂. Chemistry of Materials, 2018, 30, 1230-1238.	3.2	56
51	Chemical Oxidation of Graphite: Evolution of the Structure and Properties. Journal of Physical Chemistry C, 2018, 122, 929-935.	1.5	38
52	Implanting Germanium into Graphene. ACS Nano, 2018, 12, 4641-4647.	7.3	86
53	Revealing the 3D structure of graphene defects. 2D Materials, 2018, 5, 045029.	2.0	14
54	2D Material Science: Defect Engineering by Particle Irradiation. Materials, 2018, 11, 1885.	1.3	69

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55	Graphene hybrids and extended defects: Revealing 3D structures and new insights to radiation damage. Microscopy and Microanalysis, 2018, 24, 1582-1583.	0.2	0
56	Electron-Beam Manipulation of Silicon Dopants in Graphene. Nano Letters, 2018, 18, 5319-5323.	4.5	98
57	Atomic-Scale <i>in Situ</i> Observations of Crystallization and Restructuring Processes in Two-Dimensional MoS₂ Films. ACS Nano, 2018, 12, 8758-8769.	7.3	51
58	Atomic-Scale Deformations at the Interface of a Mixed-Dimensional van der Waals Heterostructure. ACS Nano, 2018, 12, 8512-8519.	7.3	19
59	In situ control of graphene ripples and strain in the electron microscope. Npj 2D Materials and Applications, 2018, 2, .	3.9	16
60	Intrinsic core level photoemission of suspended monolayer graphene. Physical Review Materials, 2018, 2, .	0.9	15
61	Defect engineering of single- and few-layer MoS ₂ by swift heavy ion irradiation. 2D Materials, 2017, 4, 015034.	2.0	60
62	Unraveling the 3D Atomic Structure of a Suspended Graphene/hBN van der Waals Heterostructure. Nano Letters, 2017, 17, 1409-1416.	4.5	84
63	Single-atom spectroscopy of phosphorus dopants implanted into graphene. 2D Materials, 2017, 4, 021013.	2.0	77
64	Manipulating low-dimensional materials down to the level of single atoms with electron irradiation. Ultramicroscopy, 2017, 180, 163-172.	0.8	135
65	Introducing Overlapping Grain Boundaries in Chemical Vapor Deposited Hexagonal Boron Nitride Monolayer Films. ACS Nano, 2017, 11, 4521-4527.	7.3	35
66	Buckyball sandwiches. Science Advances, 2017, 3, e1700176.	4.7	50
67	Grain boundary-mediated nanopores in molybdenum disulfide grown by chemical vapor deposition. Nanoscale, 2017, 9, 1591-1598.	2.8	31
68	Creating nanoporous graphene with swift heavy ions. Carbon, 2017, 114, 511-518.	5.4	52
69	Progress in electronics and photonics with nanomaterials. Vacuum, 2017, 146, 304-307.	1.6	27
70	Engineering and modifying two-dimensional materials by electron beams. MRS Bulletin, 2017, 42, 667-676.	1.7	62
71	Towards atomically precise manipulation of 2D nanostructures in the electron microscope. 2D Materials, 2017, 4, 042004.	2.0	73
72	Cleaning graphene: Comparing heat treatments in air and in vacuum. Physica Status Solidi - Rapid Research Letters, 2017, 11, 1700124.	1.2	61

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73	Understanding and Exploiting the Interaction of Electron Beams With Low-dimensional Materials - From Controlled Atomic-level Manipulation to Circumventing Radiation Damage. Microscopy and Microanalysis, 2017, 23, 196-197.	0.2	1
74	Structure and Energetics of Embedded Si Patterns in Graphene. Physica Status Solidi (B): Basic Research, 2017, 254, 1700188.	0.7	5
75	Structure and electronic states of a graphene double vacancy with an embedded Si dopant. Journal of Chemical Physics, 2017, 147, 194702.	1.2	9
76	Computational insights and the observation of SiC nanograin assembly: towards 2D silicon carbide. Scientific Reports, 2017, 7, 4399.	1.6	73
77	A new detection scheme for van der Waals heterostructures, imaging individual fullerenes between graphene sheets, and controlling the vacuum in scanning transmission electron microscopy. Microscopy and Microanalysis, 2017, 23, 460-461.	0.2	8
78	Visualising the strain distribution in suspended two-dimensional materials under local deformation. Scientific Reports, 2016, 6, 28485.	1.6	37
79	Comment on â€œTemperature dependence of atomic vibrations in mono-layer grapheneâ€•[J. Appl. Phys. 118, 074302 (2015)]. Journal of Applied Physics, 2016, 119, 066101.	1.1	2
80	Nanopore fabrication and characterization by helium ion microscopy. Applied Physics Letters, 2016, 108, .	1.5	96
81	Confined linear carbon chains as a route to bulkÂcarbyne. Nature Materials, 2016, 15, 634-639.	13.3	341
82	Raman characterization of platinum diselenide thin films. 2D Materials, 2016, 3, 021004.	2.0	172
83	Potassium intercalated multiwalled carbon nanotubes. Carbon, 2016, 105, 90-95.	5.4	15
84	High-Performance Hybrid Electronic Devices from Layered PtSe₂ Films Grown at Low Temperature. ACS Nano, 2016, 10, 9550-9558.	7.3	310
85	Structural Changes in 2D Materials Due to Scattering of Light Ions. Nanoscience and Technology, 2016, , 63-88.	1.5	1
86	Isotope analysis in the transmission electron microscope. Nature Communications, 2016, 7, 13040.	5.8	64
87	Exploring Low-dimensional Carbon Materials by High-resolution Electron and Scanned Probe Microscopy. Microscopy and Microanalysis, 2015, 21, 1147-1148.	0.2	0
88	Xe irradiation of graphene on Ir(111): From trapping to blistering. Physical Review B, 2015, 92, .	1.1	32
89	Atomic Structure of Amorphous 2D Carbon Structures as Revealed by Scanning Transmission Electron Microscopy. Microscopy and Microanalysis, 2015, 21, 997-998.	0.2	0
90	Comment on â€œInterfacial Carbon Nanoplatelet Formation by Ion Irradiation of Graphene on Iridium(111)â€• ACS Nano, 2015, 9, 4664-4665.	7.3	10

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91	Toward Two-Dimensional All-Carbon Heterostructures via Ion Beam Patterning of Single-Layer Graphene. Nano Letters, 2015, 15, 5944-5949.	4.5	85
92	Towards weighing individual atoms by high-angle scattering of electrons. Ultramicroscopy, 2015, 151, 23-30.	0.8	12
93	An atomically thin matter-wave beamsplitter. Nature Nanotechnology, 2015, 10, 845-848.	15.6	41
94	Interfacial Carbon Nanoplatelet Formation by Ion Irradiation of Graphene on Iridium(111). ACS Nano, 2014, 8, 12208-12218.	7.3	29
95	Impact of graphene polycrystallinity on the performance of graphene field-effect transistors. Applied Physics Letters, 2014, 104, 043509.	1.5	7
96	Nitrogen controlled iron catalyst phase during carbon nanotube growth. Applied Physics Letters, 2014, 105, .	1.5	22
97	Irradiation-induced Modifications and Beam-driven Dynamics in Low-dimensional Materials. Microscopy and Microanalysis, 2014, 20, 1726-1727.	0.2	0
98	Siliconâ€“Carbon Bond Inversions Driven by 60-keV Electrons in Graphene. Physical Review Letters, 2014, 113, 115501.	2.9	123
99	Atomic structure and energetics of large vacancies in graphene. Physical Review B, 2014, 89, .	1.1	30
100	Imaging atomic-level random walk of a point defect in graphene. Nature Communications, 2014, 5, 3991.	5.8	103
101	Charge Transport in Polycrystalline Graphene: Challenges and Opportunities. Advanced Materials, 2014, 26, 5079-5094.	11.1	166
102	Atomic structure from large-area, low-dose exposures of materials: A new route to circumvent radiation damage. Ultramicroscopy, 2014, 145, 13-21.	0.8	30
103	Atom-by-Atom STEM Investigation of Defect Engineering in Graphene. Microscopy and Microanalysis, 2014, 20, 1736-1737.	0.2	2
104	A journey from order to disorder â€" Atom by atom transformation from graphene to a 2D carbon glass. Scientific Reports, 2014, 4, 4060.	1.6	67
105	Structural manipulation of the graphene/metal interface with Ar<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msup><mml:mrow /><mml:mo>+</mml:mo></mml:msup></mml:math>irradiation. Physical Review B, 2013, 88, .	1.1	26
106	Defects in bilayer silica and graphene: common trends in diverse hexagonal two-dimensional systems. Scientific Reports, 2013, 3, 3482.	1.6	80
107	Inclusion of radiation damage dynamics in high-resolution transmission electron microscopy image simulations: The example of graphene. Physical Review B, 2013, 87, .	1.1	31
108	Scaling Properties of Charge Transport in Polycrystalline Graphene. Nano Letters, 2013, 13, 1730-1735.	4.5	126

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109	Ion Impacts on Graphene/Ir(111): Interface Channeling, Vacancy Funnels, and a Nanomesh. Nano Letters, 2013, 13, 1948-1955.	4.5	81
110	Probing from Both Sides: Reshaping the Graphene Landscape via Face-to-Face Dual-Probe Microscopy. Nano Letters, 2013, 13, 1934-1940.	4.5	31
111	Atomic-scale effects behind structural instabilities in Si lamellae during ion beam thinning. AIP Advances, 2012, 2, .	0.6	8
112	Ion irradiation tolerance of graphene as studied by atomistic simulations. Applied Physics Letters, 2012, 100, 233108.	1.5	42
113	Quantitative Atomic-resolution Imaging and Spectroscopy of a 2D Silica Glass. Microscopy and Microanalysis, 2012, 18, 340-341.	0.2	0
114	Imaging the Atoms in a Two-Dimensional Silica Glass on Graphene. Microscopy and Microanalysis, 2012, 18, 1496-1497.	0.2	0
115	Quantitative Analysis of Electron Beam-Induced Destruction of Graphene Membranes under an Electron Microscope. Microscopy and Microanalysis, 2012, 18, 1500-1501.	0.2	0
116	Atomistic Description of Electron Beam Damage in Nitrogen-Doped Graphene and Single-Walled Carbon Nanotubes. ACS Nano, 2012, 6, 8837-8846.	7.3	119
117	Two-Dimensional Transition Metal Dichalcogenides under Electron Irradiation: Defect Production and Doping. Physical Review Letters, 2012, 109, 035503.	2.9	960
118	Accurate Measurement of Electron Beam Induced Displacement Cross Sections for Single-Layer Graphene. Physical Review Letters, 2012, 108, 196102.	2.9	383
119	Mechanical properties of polycrystalline graphene based on a realistic atomistic model. Physical Review B, 2012, 85, .	1.1	181
120	Stability of Graphene Edges under Electron Beam: Equilibrium Energetics <i>versus</i> Dynamic Effects. ACS Nano, 2012, 6, 671-676.	7.3	120
121	Direct Imaging of a Two-Dimensional Silica Glass on Graphene. Nano Letters, 2012, 12, 1081-1086.	4.5	236
122	Atom-by-Atom Observation of Grain Boundary Migration in Graphene. Nano Letters, 2012, 12, 3168-3173.	4.5	178
123	Atomistic simulations of the implantation of low-energy boron and nitrogen ions into graphene. Physical Review B, 2011, 83, .	1.1	127
124	Cutting and controlled modification of graphene with ion beams. Nanotechnology, 2011, 22, 175306.	1.3	130
125	From Point Defects in Graphene to Two-Dimensional Amorphous Carbon. Physical Review Letters, 2011, 106, 105505.	2.9	675
126	Structural Defects in Graphene. ACS Nano, 2011, 5, 26-41.	7.3	2,818

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127	Stone-Wales-type transformations in carbon nanostructures driven by electron irradiation. Physical Review B, 2011, 83, .	1.1	226
128	Production of defects in hexagonal boron nitride monolayer under ion irradiation. Nuclear Instruments & Methods in Physics Research B, 2011, 269, 1327-1331.	0.6	50
129	Finite-size effects in the phonon density of states of nanostructured germanium: A comparative study of nanoparticles, nanocrystals, nanoglasses, and bulk phases. Physical Review B, 2011, 83, .	1.1	49
130	Effects of ion bombardment on a two-dimensional target: Atomistic simulations of graphene irradiation. Physical Review B, 2010, 81, .	1.1	341
131	Nanomachining Graphene with Ion Irradiation. Materials Research Society Symposia Proceedings, 2010, 1259, 1.	0.1	1
132	Electron knock-on damage in hexagonal boron nitride monolayers. Physical Review B, 2010, 82, .	1.1	241
133	Novel High Pressure Structures of Polymeric Nitrogen. Physical Review Letters, 2009, 102, 065501.	2.9	226
134	The diffusion of carbon atoms inside carbon nanotubes. New Journal of Physics, 2008, 10, 023022.	1.2	42
135	First-principles calculations on solid nitrogen: A comparative study of high-pressure phases. Physical Review B, 2008, 77, .	1.1	45
136	Relative abundance of single and double vacancies in irradiated single-walled carbon nanotubes. Applied Physics Letters, 2007, 91, 173109.	1.5	45
137	Atomistic simulations of irradiation effects in carbon nanotubes: an overview. Radiation Effects and Defects in Solids, 2007, 162, 157-169.	0.4	17
138	Kinetic Monte Carlo Simulations of the Response of Carbon Nanotubes to Electron Irradiation. Journal of Computational and Theoretical Nanoscience, 2007, 4, 1153-1159.	0.4	19
139	Energetics, structure, and long-range interaction of vacancy-type defects in carbon nanotubes: Atomistic simulations. Physical Review B, 2006, 74, .	1.1	202
140	Binding a carbon nanotube to the Si(100) surface using ion irradiationâ€"an atomistic simulation study. New Journal of Physics, 2006, 8, 115-115.	1.2	6
141	A molecular dynamics study of the clustering of implanted potassium in multiwalled carbon nanotubes. Nuclear Instruments & Methods in Physics Research B, 2005, 240, 810-818.	0.6	14
142	Irradiation-assisted substitution of carbon atoms with nitrogen and boron in single-walled carbon nanotubes. Nuclear Instruments & Methods in Physics Research B, 2005, 228, 31-36.	0.6	29
143	A quantitative and comparative study of sputtering yields in Au. Nuclear Instruments & Methods in Physics Research B, 2005, 239, 331-346.	0.6	58
144	Ion irradiation-induced welding of a carbon nanotube to a Si (100) surface. Materials Research Society Symposia Proceedings, 2005, 908, 1.	0.1	0

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145	B and N ion implantation into carbon nanotubes: Insight from atomistic simulations. Physical Review B, 2005, 71, .	1.1	88