R V Gorbachev

List of Publications by Citations

94 papers	19,643 citations	46 h-index	103 g-index
103 ext. papers	22,346 ext. citations	14 avg, IF	6.27 L-index

#	Paper	IF	Citations
94	Field-effect tunneling transistor based on vertical graphene heterostructures. *Science*, **2012**, 335, 947-50	33.3	1991
93	Strong light-matter interactions in heterostructures of atomically thin films. *Science*, **2013**, 340, 1311-4	33.3	1850
92	Vertical field-effect transistor based on graphene-WS2 heterostructures for flexible and transparent electronics. *Nature Nanotechnology*, **2013**, 8, 100-3	28.7	1342
91	Micrometer-scale ballistic transport in encapsulated graphene at room temperature. *Nano Letters*, **2011**, 11, 2396-9	11.5	1203
90	Cloning of Dirac fermions in graphene superlattices. *Nature*, **2013**, 497, 594-7	50.4	884
89	Hunting for monolayer boron nitride: optical and Raman signatures. *Small*, **2011**, 7, 465-8	11	791
88	High electron mobility, quantum Hall effect and anomalous optical response in atomically thin InSe. *Nature Nanotechnology*, **2017**, 12, 223-227	28.7	723
87	Strong plasmonic enhancement of photovoltage in graphene. *Nature Communications*, **2011**, 2, 458	17.4	679
86	Cross-sectional imaging of individual layers and buried interfaces of graphene-based heterostructures and superlattices. *Nature Materials*, **2012**, 11, 764-7	27	664
85	Commensurate–incommensurate transition in graphene on hexagonal boron nitride. *Nature Physics*, **2014**, 10, 451-456	16.2	582
84	Electron tunneling through ultrathin boron nitride crystalline barriers. *Nano Letters*, **2012**, 12, 1707-10	11.5	579
83	Dirac cones reshaped by interaction effects in suspended graphene. *Nature Physics*, **2011**, 7, 701-704	16.2	577
82	Detecting topological currents in graphene superlattices. *Science*, **2014**, 346, 448-51	33.3	481
81	Resonant tunnelling and negative differential conductance in graphene transistors. *Nature Communications*, **2013**, 4, 1794	17.4	451
80	Tunable metal–insulator transition in double-layer graphene heterostructures. *Nature Physics*, **2011**, 7, 958-961	16.2	417
79	Weak localization in graphene flakes. *Physical Review Letters*, **2008**, 100, 056802	7.4	377
78	Resonantly hybridized excitons in moiré superlattices in van der Waals heterostructures. *Nature*, **2019**, 567, 81-86	50.4	367

77	Electronic properties of graphene encapsulated with different two-dimensional atomic crystals. *Nano Letters*, **2014**, 14, 3270-6	11.5	345
76	Twist-controlled resonant tunnelling in graphene/boron nitride/graphene heterostructures. *Nature Nanotechnology*, **2014**, 9, 808-13	28.7	341
75	Recent progress in the assembly of nanodevices and van der Waals heterostructures by deterministic placement of 2D materials. *Chemical Society Reviews*, **2018**, 47, 53-68	58.5	312
74	Singular phase nano-optics in plasmonic metamaterials for label-free single-molecule detection. *Nature Materials*, **2013**, 12, 304-9	27	311
73	Strong Coulomb drag and broken symmetry in double-layer graphene. *Nature Physics*, **2012**, 8, 896-901	16.2	303
72	Limits on charge carrier mobility in suspended graphene due to flexural phonons. *Physical Review Letters*, **2010**, 105, 266601	7.4	297
71	Transition between electron localization and antilocalization in graphene. *Physical Review Letters*, **2009**, 103, 226801	7.4	296
70	Quality Heterostructures from Two-Dimensional Crystals Unstable in Air by Their Assembly in Inert Atmosphere. *Nano Letters*, **2015**, 15, 4914-21	11.5	289
69	Interaction-driven spectrum reconstruction in bilayer graphene. *Science*, **2011**, 333, 860-3	33.3	226
68	Giant nonlocality near the Dirac point in graphene. *Science*, **2011**, 332, 328-30	33.3	217
67	Weak localization in bilayer graphene. *Physical Review Letters*, **2007**, 98, 176805	7.4	185
66	Density of states and zero Landau Level probed through capacitance of graphene. *Physical Review Letters*, **2010**, 105, 136801	7.4	172
65	Conductance of p-n-p graphene structures with "air-bridge" top gates. *Nano Letters*, **2008**, 8, 1995-9	11.5	155
64	Graphene bubbles with controllable curvature. *Applied Physics Letters*, **2011**, 99, 093103	3.4	143
63	Hierarchy of Hofstadter states and replica quantum Hall ferromagnetism in graphene superlattices. *Nature Physics*, **2014**, 10, 525-529	16.2	137
62	How close can one approach the Dirac point in graphene experimentally?. *Nano Letters*, **2012**, 12, 4629-34	11.5	136
61	Photothermoelectric and photoelectric contributions to light detection in metal-graphene-metal photodetectors. *Nano Letters*, **2014**, 14, 3733-42	11.5	124
60	Atomic reconstruction in twisted bilayers of transition metal dichalcogenides. *Nature Nanotechnology*, **2020**, 15, 592-597	28.7	110

59	Raman fingerprint of aligned graphene/h-BN superlattices. *Nano Letters*, **2013**, 13, 5242-6	11.5	83
58	Tuning the Pseudospin Polarization of Graphene by a Pseudomagnetic Field. *Nano Letters*, **2017**, 17, 2240-2245	11.5	78
57	Electrostatically Confined Monolayer Graphene Quantum Dots with Orbital and Valley Splittings. *Nano Letters*, **2016**, 16, 5798-805	11.5	72
56	Evaluating arbitrary strain configurations and doping in graphene with Raman spectroscopy. *2D Materials*, **2018**, 5, 015016	5.9	71
55	Nanometer Resolution Elemental Mapping in Graphene-Based TEM Liquid Cells. *Nano Letters*, **2018**, 18, 1168-1174	11.5	67
54	Design of van der Waals interfaces for broad-spectrum optoelectronics. *Nature Materials*, **2020**, 19, 299-304	27	64
53	Stacking boundaries and transport in bilayer graphene. *Nano Letters*, **2014**, 14, 2052-7	11.5	55
52	Giant magnetodrag in graphene at charge neutrality. *Physical Review Letters*, **2013**, 111, 166601	7.4	53
51	High Quality Factor Graphene-Based Two-Dimensional Heterostructure Mechanical Resonator. *Nano Letters*, **2017**, 17, 5950-5955	11.5	49
50	Giant spin-Hall effect induced by the Zeeman interaction in graphene. *Physical Review Letters*, **2011**, 107, 096601	7.4	47
49	Atomic Defects and Doping of Monolayer NbSe. *ACS Nano*, **2017**, 11, 2894-2904	16.7	46
48	Micromagnetometry of two-dimensional ferromagnets. *Nature Electronics*, **2019**, 2, 457-463	28.4	46
47	Indirect to Direct Gap Crossover in Two-Dimensional InSe Revealed by Angle-Resolved Photoemission Spectroscopy. *ACS Nano*, **2019**, 13, 2136-2142	16.7	40
46	Large tunable valley splitting in edge-free graphene quantum dots on boron nitride. *Nature Nanotechnology*, **2018**, 13, 392-397	28.7	40
45	Unusual Suppression of the Superconducting Energy Gap and Critical Temperature in Atomically Thin NbSe. *Nano Letters*, **2018**, 18, 2623-2629	11.5	39
44	Observing Imperfection in Atomic Interfaces for van der Waals Heterostructures. *Nano Letters*, **2017**, 17, 5222-5228	11.5	39
43	Infrared-to-violet tunable optical activity in atomic films of GaSe, InSe, and their heterostructures. *2D Materials*, **2018**, 5, 041009	5.9	39
42	Dual-Scattering Near-Field Microscope for Correlative Nanoimaging of SERS and Electromagnetic Hotspots. *Nano Letters*, **2017**, 17, 2667-2673	11.5	38

41	Nonlocal Response and Anamorphosis: The Case of Few-Layer Black Phosphorus. *Nano Letters*, **2015**, 15, 6991-5	11.5	36
40	Quantum transport thermometry for electrons in graphene. *Physical Review Letters*, **2009**, 102, 066801	7.4	36
39	Weak localization in monolayer and bilayer graphene. *Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences*, **2008**, 366, 245-50	3	36
38	Composite super-moir lattices in double-aligned graphene heterostructures. *Science Advances*, **2019**, 5, eaay8897	14.3	36
37	Gate-Defined One-Dimensional Channel and Broken Symmetry States in MoS van der Waals Heterostructures. *Nano Letters*, **2017**, 17, 5008-5011	11.5	33
36	Gate-Defined Quantum Confinement in InSe-Based van der Waals Heterostructures. *Nano Letters*, **2018**, 18, 3950-3955	11.5	33
35	CVD graphene vs. highly ordered pyrolytic graphite for use in electroanalytical sensing. *Analyst, The* , **2012**, 137, 833-9	5	32
34	Field-effect control of tunneling barrier height by exploiting graphene¥ low density of states. *Journal of Applied Physics*, **2013**, 113, 136502	2.5	31
33	Scalable Patterning of Encapsulated Black Phosphorus. *Nano Letters*, **2018**, 18, 5373-5381	11.5	30
32	Anomalous twin boundaries in two dimensional materials. *Nature Communications*, **2018**, 9, 3597	17.4	30
31	Total Ionizing Dose Effects on hBN Encapsulated Graphene Devices. *IEEE Transactions on Nuclear Science*, **2014**, 61, 2868-2873	1.7	24
30	Formation and Healing of Defects in Atomically Thin GaSe and InSe. *ACS Nano*, **2019**, 13, 5112-5123	16.7	23
29	Non-destructive electron microscopy imaging and analysis of biological samples with graphene coating. *2D Materials*, **2016**, 3, 045004	5.9	23
28	Ultra-thin van der Waals crystals as semiconductor quantum wells. *Nature Communications*, **2020**, 11, 125	17.4	22
27	Coexistence of electron and hole transport in graphene. *Physical Review B*, **2011**, 84,	3.3	21
26	Control of electron-electron interaction in graphene by proximity screenings. *Nature Communications*, **2020**, 11, 2339	17.4	17
25	Optical second harmonic generation in encapsulated single-layer InSe. *AIP Advances*, **2018**, 8, 105120	1.5	15
24	Niobium diselenide superconducting photodetectors. *Applied Physics Letters*, **2019**, 114, 251103	3.4	13

23	Raman spectroscopy of GaSe and InSe post-transition metal chalcogenides layers. *Faraday Discussions*, **2021**, 227, 163-170	3.6	11
22	Quantum Hall activation gaps in bilayer graphene. *Solid State Communications*, **2010**, 150, 2209-2211	1.6	10
21	Long-range ballistic transport of Brown-Zak fermions in graphene superlattices. *Nature Communications*, **2020**, 11, 5756	17.4	10
20	Enhanced Superconductivity in Few-Layer TaS due to Healing by Oxygenation. *Nano Letters*, **2020**, 20, 3808-3818	11.5	10
19	Graphene as a local probe to investigate near-field properties of plasmonic nanostructures. *Physical Review B*, **2018**, 97,	3.3	9
18	Atomic Resolution Imaging of CrBr Using Adhesion-Enhanced Grids. *Nano Letters*, **2020**, 20, 6582-6589	11.5	8
17	Ion exchange in atomically thin clays and micas. *Nature Materials*, **2021**, 20, 1677-1682	27	7
16	Magnetotransport and lateral confinement in an InSe van der Waals Heterostructure. *2D Materials*, **2018**, 5, 035040	5.9	6
15	Quantized coexisting electrons and holes in graphene measured using temperature-dependent magnetotransport. *Physical Review B*, **2013**, 87,	3.3	6
14	Magnetotransport in single-layer graphene in a large parallel magnetic field. *Physical Review B*, **2016**, 94,	3.3	6
13	Selective spectroscopy of tunneling transitions between the Landau levels in vertical double-gate graphene–boron nitride–graphene heterostructures. *JETP Letters*, **2016**, 104, 334-340	1.2	5
12	Field-induced insulating states in a graphene superlattice. *Physical Review B*, **2019**, 99,	3.3	2
11	Ghost anti-crossings caused by interlayer umklapp hybridization of bands in 2D heterostructures. *2D Materials*, **2021**, 8, 015016	5.9	2
10	Interfacial ferroelectricity in marginally twisted 2D semiconductors		2
9	Observation of Spin and Valley Splitting of Landau Levels under Magnetic Tunneling in Graphene/Boron Nitride/Graphene Structures. *JETP Letters*, **2018**, 107, 238-242	1.2	1
8	In Situ TEM Imaging of Solution-Phase Chemical Reactions Using 2D-Heterostructure Mixing Cells. *Advanced Materials*, **2021**, 33, e2100668	24	1
7	Liquid-Phase STEM-EDS in Graphene and Silicon Nitride Cells. *Microscopy and Microanalysis*, **2019**, 25, 1500-1501	0.5	0
6	Nanometre imaging of FeGeTe ferromagnetic domain walls. *Nanotechnology*, **2021**, 32, 205703	3.4	0

List of Publications

5	Harnessing the Electron Beam to Study Reactions in Graphene Liquid Cells and Degradation in Sensitive 2D Materials. *Microscopy and Microanalysis*, **2020**, 26, 538-541	0.5
4	High resolution STEM imaging and analysis of 2D crystal heterostructure devices and nanoparticle catalysts **2016**, 773-774	
3	Understanding 2D Crystal Vertical Heterostructures at the Atomic Scale Using Advanced Scanning Transmission Electron Microscopy. *Microscopy and Microanalysis*, **2017**, 23, 1714-1715	0.5
2	Twist and Bend in Van Der Waals Materials and 2D Stacked Heterostructures. *Microscopy and Microanalysis*, **2020**, 26, 856-858	0.5
1	Magic under the microscope. *Nature Materials*, **2021**, 20, 908-909	27