

Kostya S. Novoselov
LIST OF MAIN PUBLICATIONS

(refereed papers and patents only)

LAST UPDATED March 2017

1. C. S. Woodhead, J. Roberts, Y. J. Noori, Y. Cao, R. Bernardo-Gavito, P. Tovee, A. Kozikov, K. Novoselov, and R. J. Young
"Increasing the light extraction and longevity of TMDC monolayers using liquid formed micro-lenses"
2D Materials **4**(1), 015032 (2017).
2. M. J. Zhu, D. Ghazaryan, S. K. Son, C. R. Woods, A. Misra, L. He, T. Taniguchi, K. Watanabe, K. S. Novoselov, Y. Cao, and A. Mishchenko
"Stacking transition in bilayer graphene caused by thermally activated rotation"
2D Materials **4**(1), 011013 (2017).
3. D. A. Bandurin, A. V. Tyurnina, G. L. Yu, A. Mishchenko, V. Zolyomi, S. V. Morozov, R. K. Kumar, R. V. Gorbachev, Z. R. Kudrynskiy, S. Pezzini, Z. D. Kovalyuk, U. Zeitler, K. S. Novoselov, A. Patane, L. Eaves, I. V. Grigorieva, V. I. Fal'ko, A. K. Geim, and Y. Cao
"High electron mobility, quantum Hall effect and anomalous optical response in atomically thin InSe"
Nature Nanotechnology **12**(3), 223-227 (2017).
4. M. J. Zhu, A. V. Kretinin, M. D. Thompson, D. A. Bandurin, S. Hu, G. L. Yu, J. Birkbeck, A. Mishchenko, I. J. Vera-Marun, K. Watanabe, T. Taniguchi, M. Polini, J. R. Prance, K. S. Novoselov, A. K. Geim, and M. Ben Shalom
"Edge currents shunt the insulating bulk in gapped graphene"
Nature Communications **8**, 14552 (2017).
5. M. Velicky, P. S. Toth, A. M. Rakowski, A. P. Rooney, A. Kozikov, C. R. Woods, A. Mishchenko, L. Fumagalli, J. Yin, V. Zolyomi, T. Georgiou, S. J. Haigh, K. S. Novoselov, and R. A. W. Dryfe
"Exfoliation of natural van der Waals heterostructures to a single unit cell thickness"
Nature Communications **8**, 14410 (2017).
6. S. Chakraborty, O. P. Marshall, T. G. Folland, Y. J. Kim, A. N. Grigorenko, and K. S. Novoselov
"Gain modulation by graphene plasmons in aperiodic lattice lasers"
Science **351**(6270), 246-248 (2016).
7. D. A. Bandurin, I. Torre, R. K. Kumar, M. Ben Shalom, A. Tomadin, A. Principi, G. H. Auton, E. Khestanova, K. S. Novoselov, I. V. Grigorieva, L. A. Ponomarenko, A. K. Geim, and M. Polini
"Negative local resistance caused by viscous electron backflow in graphene"
Science **351**(6277), 1055-1058 (2016).
8. C. R. Woods, F. Withers, M. J. Zhu, Y. Cao, G. Yu, A. Kozikov, M. Ben Shalom, S. V. Morozov, M. M. van Wijk, A. Fasolino, M. I. Katsnelson, K. Watanabe, T. Taniguchi, A. K. Geim, A. Mishchenko, and K. S. Novoselov
"Macroscopic self-reorientation of interacting two-dimensional crystals"
Nature Communications **7**, 10800 (2016).
9. M. Velicky, M. A. Bissett, C. R. Woods, P. S. Toth, T. Georgiou, I. A. Kinloch, K. S. Novoselov, and R. A. W. Dryfe
"Photoelectrochemistry of pristine mono- and few-layer MoS₂"

- Nano Letters* **16**(3), 2023-2032 (2016).
10. D. H. Deng, K. S. Novoselov, Q. Fu, N. F. Zheng, Z. Q. Tian, and X. H. Bao
"Catalysis with two-dimensional materials and their heterostructures"
Nature Nanotechnology **11**(3), 218-230 (2016).
 11. M. Ben Shalom, M. J. Zhu, V. I. Fal'ko, A. Mishchenko, A. V. Kretinin, K. S. Novoselov, C. R. Woods, K. Watanabe, T. Taniguchi, A. K. Geim, and J. R. Prance
"Quantum oscillations of the critical current and high-field superconducting proximity in ballistic graphene"
Nature Physics **12**(4), 318-U151 (2016).
 12. J. C. Zheng, L. Zhang, A. V. Kretinin, S. V. Morozov, Y. B. Wang, T. Wang, X. J. Li, F. Ren, J. Y. Zhang, C. Y. Lu, J. C. Chen, M. Lu, H. Q. Wang, A. K. Geim, and K. S. Novoselov
"High thermal conductivity of hexagonal boron nitride laminates"
2D Materials **3**(1), 011004 (2016).
 13. E. E. Vdovin, A. Mishchenko, M. T. Greenaway, M. J. Zhu, D. Ghazaryan, A. Misra, Y. Cao, S. V. Morozov, O. Makarovskiy, T. M. Fromhold, A. Patane, G. J. Slotman, M. I. Katsnelson, A. K. Geim, K. S. Novoselov, and L. Eaves
"Phonon-assisted resonant tunneling of electrons in graphene-boron nitride transistors"
Physical Review Letters **116**(18), 186603 (2016).
 14. S. Kaur, Y. J. Kim, H. Milton, D. Mistry, I. M. Syed, J. Bailey, K. S. Novoselov, J. C. Jones, P. B. Morgan, J. Clamp, and H. F. Gleeson
"Graphene electrodes for adaptive liquid crystal contact lenses"
Optics Express **24**(8), 8782-8787 (2016).
 15. A. J. Giles, S. Y. Dai, O. J. Glembocki, A. V. Kretinin, Z. Y. Sun, C. T. Ellis, J. G. Tischler, T. Taniguchi, K. Watanabe, M. M. Fogler, K. S. Novoselov, D. N. Basov, and J. D. Caldwell
"Imaging of anomalous internal reflections of hyperbolic phonon-polaritons in hexagonal boron nitride"
Nano Letters **16**(6), 3858-3865 (2016).
 16. I. Barbolina, C. R. Woods, N. Lozano, K. Kostarelos, K. S. Novoselov, and I. S. Roberts
"Purity of graphene oxide determines its antibacterial activity"
2D Materials **3**(2), 025025 (2016).
 17. X. J. Huang, T. Leng, K. H. Chang, J. C. Chen, K. S. Novoselov, and Z. R. Hu
"Graphene radio frequency and microwave passive components for low cost wearable electronics"
2D Materials **3**(2), 025021 (2016).
 18. S. Schwarz, A. Kozikov, F. Withers, J. K. Maguire, A. P. Foster, S. Dufferwiel, L. Hague, M. N. Makhonin, L. R. Wilson, A. K. Geim, K. S. Novoselov, and A. I. Tartakovskii
"Electrically pumped single-defect light emitters in WSe₂"
2D Materials **3**(2), 025038 (2016).
 19. J. R. Wallbank, D. Ghazaryan, A. Misra, Y. Cao, J. S. Tu, B. A. Piot, M. Potemski, S. Pezzini, S. Wiedmann, U. Zeitler, T. L. M. Lane, S. V. Morozov, M. T. Greenaway, L. Eaves, A. K. Geim, V. I. Fal'ko, K. S. Novoselov, and A. Mishchenko

- "Tuning the valley and chiral quantum state of Dirac electrons in van der Waals heterostructures"**
Science **353**(6299), 575-579 (2016).
20. K. S. Novoselov, A. Mishchenko, A. Carvalho, and A. H. Castro Neto
"2D materials and van der Waals heterostructures"
Science **353**(6298), aac9439-aac9439 (2016).
21. G. Anagnostopoulos, P. N. Pappas, Z. L. Li, I. A. Kinloch, R. J. Young, K. S. Novoselov, C. Y. Lu, N. Pugno, J. Parthenios, C. Galiotis, and K. Papagelis
"Mechanical stability of flexible graphene-based displays"
ACS Applied Materials & Interfaces **8**(34), 22605-22614 (2016).
22. F. Chiappini, S. Wiedmann, M. Titov, A. K. Geim, R. V. Gorbachev, E. Khestanova, A. Mishchenko, K. S. Novoselov, J. C. Maan, and U. Zeitler
"Magnetotransport in single-layer graphene in a large parallel magnetic field"
Physical Review B **94**(8), 085302 (2016).
23. N. M. Freitag, L. A. Chizhova, P. Nemes-Incze, C. R. Woods, R. V. Gorbachev, Y. Cao, A. K. Geim, K. S. Novoselov, J. Burgdorfer, F. Libisch, and M. Morgenstern
"Electrostatically confined monolayer graphene quantum dots with orbital and valley splittings"
Nano Letters **16**(9), 5798-5805 (2016).
24. J. B. Park, Y. J. Kim, S. M. Kim, J. M. Yoo, Y. Kim, R. Gorbachev, Barbolina, II, S. J. Kim, S. Kang, M. H. Yoon, S. P. Cho, K. S. Novoselov, and B. H. Hong
"Non-destructive electron microscopy imaging and analysis of biological samples with graphene coating"
2D Materials **3**(4), 045004 (2016).
25. T. Godde, D. Schmidt, J. Schmutzler, M. Assmann, J. Debus, F. Withers, E. M. Alexeev, O. Del Pozo-Zamudio, O. V. Skrypkina, K. S. Novoselov, M. Bayer, and A. I. Tartakovskii
"Exciton and trion dynamics in atomically thin MoSe₂ and WSe₂: Effect of localization"
Physical Review B **94**(16), 165301 (2016).
26. A. Mishchenko, A. Eckmann, I. V. Grigorieva, and K. S. Novoselov
in Book **"Fluorination Clusters on Graphene Resolved by Conductive AFM"**
edited by J. Bonca, and S. Kruchinin
Springer, Dordrecht (2016), 19-24.
27. Y. N. Khanin, E. E. Vdovin, A. Mishchenko, J. S. Tu, A. Kozikov, R. V. Gorbachev, and K. S. Novoselov
"Selective spectroscopy of tunneling transitions between the Landau levels in vertical double-gate graphene-boron nitride-graphene heterostructures"
JETP Letters **104**(5), 334-340 (2016).
28. T. G. Folland, O. P. Marshall, Y. J. Kim, K. S. Novoselov, and S. Chakraborty
in Book **"Gain control using graphene plasmons in aperiodic DFB lasers"**
IEEE, New York (2016).
29. E. Lee, T. G. Folland, K. Novoselov, and S. Chakraborty

in Book **"Graphene plasmon-modified THz laser waveguides"**
IEEE, New York (2016).

30. A. R. Jang, S. Hong, C. Hyun, S. I. Yoon, G. Kim, H. Y. Jeong, T. J. Shin, S. O. Park, K. Wong, S. K. Kwak, N. Park, K. Yu, E. Choi, A. Mishchenko, F. Withers, K. S. Novoselov, H. Lim, and H. S. Shin
"Wafer-scale and wrinkle-free epitaxial growth of single-orientated multilayer hexagonal boron nitride on sapphire"
Nano Letters **16**(5), 3360-3366 (2016).
31. F. Withers, O. Del Pozo-Zamudio, A. Mishchenko, A. P. Rooney, A. Gholinia, K. Watanabe, T. Taniguchi, S. J. Haigh, A. K. Geim, A. I. Tartakovskii, and K. S. Novoselov
"Light-emitting diodes by band-structure engineering in van der Waals heterostructures"
Nature Materials **14**(3), 301-306 (2015).
32. D. Shin, J. B. Park, Y.-J. Kim, S. J. Kim, J. H. Kang, B. Lee, S.-P. Cho, B. H. Hong, and K. S. Novoselov
"Growth dynamics and gas transport mechanism of nanobubbles in graphene liquid cells"
Nature Communications **6**, 6068 (2015).
33. A. C. Ferrari, F. Bonaccorso, V. Fal'ko, K. S. Novoselov, S. Roche, P. Boggild, S. Borini, F. H. L. Koppens, V. Palermo, N. Pugno, J. A. Garrido, R. Sordan, A. Bianco, L. Ballerini, M. Prato, E. Lidorikis, J. Kivioja, C. Marinelli, T. Ryhanen, A. Morpurgo, J. N. Coleman, V. Nicolosi, L. Colombo, A. Fert, M. Garcia-Hernandez, A. Bachtold, G. F. Schneider, F. Guinea, C. Dekker, M. Barbone, Z. P. Sun, C. Galiotis, A. N. Grigorenko, G. Konstantatos, A. Kis, M. Katsnelson, L. Vandersypen, A. Loiseau, V. Morandi, D. Neumaier, E. Treossi, V. Pellegrini, M. Polini, A. Tredicucci, G. M. Williams, B. H. Hong, J. H. Ahn, J. M. Kim, H. Zirath, B. J. van Wees, H. van der Zant, L. Occhipinti, A. Di Matteo, I. A. Kinloch, T. Seyller, E. Quesnel, X. L. Feng, K. Teo, N. Rupesinghe, P. Hakonen, S. R. T. Neil, Q. Tannock, T. Lofwanderer, and J. Kinaret
"Science and technology roadmap for graphene, related two-dimensional crystals, and hybrid systems"
Nanoscale **7**(11), 4598-4810 (2015).
34. J. D. Caldwell, and K. S. Novoselov
"Mid-infrared nanophotonics"
Nature Materials **14**(4), 363-366 (2015).
35. Z. L. Li, I. A. Kinloch, R. J. Young, K. S. Novoselov, G. Anagnostopoulos, J. Parthenios, C. Galiotis, K. Papagelis, C. Y. Lu, and L. Britnell
"Deformation of wrinkled graphene"
ACS Nano **9**(4), 3917-3925 (2015).
36. X. J. Huang, T. Leng, X. Zhang, J. C. Chen, K. H. Chang, A. K. Geim, K. S. Novoselov, and Z. R. Hu
"Binder-free highly conductive graphene laminate for low cost printed radio frequency applications"
Applied Physics Letters **106**(20), 203105 (2015).
37. G. W. Mudd, S. A. Svatek, L. Hague, O. Makarovskiy, Z. R. Kudrynskiy, C. J. Mellor, P. H. Beton, L. Eaves, K. S. Novoselov, Z. D. Kovalyuk, E. E. Vdovin, A. J. Marsden, N. R. Wilson, and A. Patane

- "High broad-band photoresponsivity of mechanically formed InSe-graphene van der Waals heterostructures"**
Advanced Materials **27**(25), 3760-3766 (2015).
38. P. N. Li, M. Lewin, A. V. Kretinin, J. D. Caldwell, K. S. Novoselov, T. Taniguchi, K. Watanabe, F. Gaussmann, and T. Taubner
"Hyperbolic phonon-polaritons in boron nitride for near-field optical imaging and focusing"
Nature Communications **6**, 7507 (2015).
39. M. Velicky, M. A. Bissett, P. S. Toth, H. V. Patten, S. D. Worrall, A. N. J. Rodgers, E. W. Hill, I. A. Kinloch, K. S. Novoselov, T. Georgiou, L. Britnell, and R. A. W. Dryfe
"Electron transfer kinetics on natural crystals of MoS₂ and graphite"
Physical Chemistry Chemical Physics **17**(27), 17844-17853 (2015).
40. Y. Cao, A. Mishchenko, G. L. Yu, E. Khestanova, A. P. Rooney, E. Prestat, A. V. Kretinin, P. Blake, M. B. Shalom, C. Woods, J. Chapman, G. Balakrishnan, I. V. Grigorieva, K. S. Novoselov, B. A. Piot, M. Potemski, K. Watanabe, T. Taniguchi, S. J. Haigh, A. K. Geim, and R. V. Gorbachev
"Quality Heterostructures from Two-Dimensional Crystals Unstable in Air by Their Assembly in Inert Atmosphere"
Nano Letters **15**(8), 4914-4921 (2015).
41. M. Velicky, A. J. Cooper, P. S. Toth, H. V. Patten, C. R. Woods, K. S. Novoselov, and R. A. W. Dryfe
"Mechanical stability of substrate-bound graphene in contact with aqueous solutions"
2D Materials **2**(2), 024011 (2015).
42. D. Smith, R. T. Howie, I. F. Crowe, C. L. Simionescu, C. Muryn, V. Vishnyakov, K. S. Novoselov, Y. J. Kim, M. P. Halsall, E. Gregoryanz, and J. E. Proctor
"Hydrogenation of graphene by reaction at high pressure and high temperature"
ACS Nano **9**(8), 8279-8283 (2015).
43. B. Park, J. Park, J. G. Son, Y. J. Kim, S. U. Yu, H. J. Park, D. H. Chae, J. Byun, G. Jeon, S. Huh, S. K. Lee, A. Mishchenko, S. Hyun, T. G. Lee, S. W. Han, J. H. Ahn, Z. Lee, C. Hwang, K. S. Novoselov, K. S. Kim, B. H. Hong, and J. K. Kim
"A facile route for patterned growth of metal-insulator carbon lateral junction through one-pot synthesis"
ACS Nano **9**(8), 8352-8360 (2015).
44. J. Gaskell, L. Eaves, K. S. Novoselov, A. Mishchenko, A. K. Geim, T. M. Fromhold, and M. T. Greenaway
"Graphene-hexagonal boron nitride resonant tunneling diodes as high-frequency oscillators"
Applied Physics Letters **107**(10), 103105 (2015).
45. A. Mishchenko, Y. Cao, G. L. Yu, C. R. Woods, R. V. Gorbachev, K. S. Novoselov, A. K. Geim, and L. S. Levitov
"Nonlocal response and anamorphosis: the case of few-layer black phosphorus"
Nano Letters **15**(10), 6991-6995 (2015).

46. R. T. Lv, G. G. Chen, Q. Li, A. McCreary, A. Botello-Mendez, S. V. Morozov, L. B. Liang, X. Declerck, N. Perea-Lopez, D. A. Cullen, S. M. Feng, A. L. Elias, R. Cruz-Silva, K. Fujisawa, M. Endo, F. Y. Kang, J. C. Charlier, V. Meunier, M. H. Pan, A. R. Harutyunyan, K. S. Novoselov, and M. Terrones
"Ultrasensitive gas detection of large-area boron-doped graphene"
Proceedings of the National Academy of Sciences of the United States of America **112**(47), 14527-14532 (2015).
47. F. Chiappini, S. Wiedmann, K. Novoselov, A. Mishchenko, A. K. Geim, J. C. Maan, and U. Zeitler
"Lifting of the Landau level degeneracy in graphene devices in a tilted magnetic field"
Physical Review B **92**(20), 201412 (2015).
48. S. Dufferwiel, S. Schwarz, F. Withers, A. A. P. Trichet, F. Li, M. Sich, O. Del Pozo-Zamudio, C. Clark, A. Nalitov, D. D. Solnyshkov, G. Malpuech, K. S. Novoselov, J. M. Smith, M. S. Skolnick, D. N. Krizhanovskii, and A. I. Tartakovskii
"Exciton-polaritons in van der Waals heterostructures embedded in tunable microcavities"
Nature Communications **6**, 8579 (2015).
49. M. T. Greenaway, E. E. Vdovin, A. Mishchenko, O. Makarovskiy, A. Patane, J. R. Wallbank, Y. Cao, A. V. Kretinin, M. J. Zhu, S. V. Morozov, V. I. Fal'ko, K. S. Novoselov, A. K. Geim, T. M. Fromhold, and L. Eaves
"Resonant tunnelling between the chiral Landau states of twisted graphene lattices"
Nature Physics **11**(12), 1057-1062 (2015).
50. X. J. Huang, T. Leng, M. J. Zhu, X. Zhang, J. C. Chen, K. Chang, M. Aqeeli, A. K. Geim, K. S. Novoselov, and Z. R. Hu
"Highly flexible and conductive printed graphene for wireless wearable communications applications"
Scientific Reports **5**, 18298 (2015).
51. F. Withers, O. Del Pozo-Zamudio, S. Schwarz, S. Dufferwiel, P. M. Walker, T. Godde, A. P. Rooney, A. Gholinia, C. R. Woods, P. Blake, S. J. Haigh, K. Watanabe, T. Taniguchi, I. L. Aleiner, A. K. Geim, V. I. Fal'ko, A. I. Tartakovskii, and K. S. Novoselov
"WSe₂ light-emitting tunneling transistors with enhanced brightness at room temperature"
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52. J. D. Caldwell, A. V. Kretinin, Y. G. Chen, V. Giannini, M. M. Fogler, Y. Francescato, C. T. Ellis, J. G. Tischler, C. R. Woods, A. J. Giles, K. Watanabe, T. Taniguchi, S. A. Maier, and K. S. Novoselov
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Spie-Int Soc Optical Engineering, Bellingham (2015), 95440R.
53. Y.-J. Kim, Y. Kim, K. Novoselov, and B. H. Hong
"Engineering electrical properties of graphene: chemical approaches"
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54. S. Schwarz, S. Dufferwiel, F. Withers, A. A. P. Trichet, F. Li, C. Clark, K. S. Novoselov, J. M. Smith, M. S. Skolnick, D. N. Krizhanovskii, A. I. Tartakovskii, and I. Ievlev
in *Book "Strong exciton-photon coupling in monolayer heterostructures in tunable microcavities"*
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55. K. S. Novoselov
"Rapid progress in producing graphene"
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56. P. S. Toth, A. T. Valota, M. Velicky, I. A. Kinloch, K. S. Novoselov, E. W. Hill, and R. A. W. Dryfe
"Electrochemistry in a drop: a study of the electrochemical behaviour of mechanically exfoliated graphene on photoresist coated silicon substrate"
Chemical Science **5**(2), 582-589 (2014).
57. K. Kostarelos, and K. S. Novoselov
"Exploring the interface of graphene and biology"
Science **344**(6181), 261-263 (2014).
58. P. San-Jose, R. V. Gorbachev, A. K. Geim, K. S. Novoselov, and F. Guinea
"Stacking boundaries and transport in bilayer graphene"
Nano Letters **14**(4), 2052-2057 (2014).
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"Thermal properties of graphene-copper-graphene heterogeneous films"
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60. A. P. A. Raju, A. Lewis, B. Derby, R. J. Young, I. A. Kinloch, R. Zan, and K. S. Novoselov
"Wide-area strain sensors based upon graphene-polymer composite coatings probed by Raman spectroscopy"
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61. C. R. Woods, L. Britnell, A. Eckmann, R. S. Ma, J. C. Lu, H. M. Guo, X. Lin, G. L. Yu, Y. Cao, R. V. Gorbachev, A. V. Kretinin, J. Park, L. A. Ponomarenko, M. I. Katsnelson, Y. N. Gornostyrev, K. Watanabe, T. Taniguchi, C. Casiraghi, H. J. Gao, A. K. Geim, and K. S. Novoselov
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"Failure processes in embedded monolayer graphene under axial compression"
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"Electronic properties of graphene encapsulated with different two-dimensional atomic crystals"
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64. N. D. Kay, B. J. Robinson, V. I. Fal'ko, K. S. Novoselov, and O. V. Kolosov

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"Electrical and optical characterization of atomically thin WS₂"
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