

Vladimir Kuznetsov

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OVERVIEW

PhD student in Physics, Condensed Matter Experiment, Optics.

EDUCATION

PhD Physics 2017-
Higher School of Economics

Thesis title: “Spin excitons and exciton complexes in quantum wells in quantum Hall regime at filling factor of 2”

Advisor: L. V. Kulik (ISSP RAS)

MS General and Applied Physics 2015-2017
Moscow Institute of Physics and Technology

Cum laude

GPA: 4,8/5

Thesis title: Three-particle states in two-dimensional electron gas at filling factor of 2

Advisor: L. V. Kulik (ISSP RAS)

BS General and Applied Physics 2014-2015
Moscow Institute of Physics and Technology

GPA: 4,4/5

Thesis title: “Plasma-like states in luminescence spectra of nonequilibrium two-dimensional electron systems”

Advisor: L. V. Kulik (ISSP RAS)

PEER-REVIEWED JOURNAL PAPERS

1. A. S. Zhuravlev, [V. A. Kuznetsov](#), L. V. Kulik, V. E. Bisti, V. E. Kirpichev, I. V. Kukushkin, and S. Schmult, “[Artificially Constructed Plasmarons and Plasmon-Exciton Molecules in 2D Metals](#)”, *Physical Review Letters* **117**, 196802 (2016).
2. A. V. Gorbunov, L. V. Kulik, [V. A. Kuznetsov](#), A. S. Zhuravlev, A. V. Larionov, V. B. Timofeev and I. V. Kukushkin, “[Detection of spin excitation transfer in a two-dimensional electron system via photoluminescence of multiparticle exciton complexes](#)”, *JETP Letters* **106**, 682–685 (2017).
3. [V. A. Kuznetsov](#), L. V. Kulik, A. S. Zhuravlev, A. V. Gorbunov, V. E. Kirpichev, M. N. Khannanov and I. V. Kukushkin, “[Excited States of Magnetotriion](#)”, *JETP Letters* **107**, 96–99 (2018).

4. L. V. Kulik, V. A. Kuznetsov, A. V. Gorbunov, V. V. Solovyev, V. B. Timofeev, I. V. Kukushkin, S. Schmult, “[Long-range non-diffusive spin transfer in a Hall insulator](#)”, *Scientific Reports* **8**, 1-6 (2018).

RELEVANT EXPERIENCE

- Experiment automatization scripts in LabView and Python
- Conducted experiments, made numerical calculations to estimate the energy of plasmaron as the energy of plasmon, prepared the draft in TeX and was in contact with editors. Results were published in [1].
- Experimental reproduction of exciton lifetime measurement (see acknowledgments in [Nature Communications paper](#))
- Spin transfer experiments in the magnetofermionic condensate. We have presented results at PLMCN18 and PLMCN19 conferences. Luminescence pump-probe measurements were published in [2]. Photoinduced resonant reflection measurements were published in [4].
- Luminescence of trion bound states in 2DEG at filling factor of 2. I conducted experiments, adopted existent calculation framework into our case, did a numerical calculation of trion energy states. First experimental results were published in [3]. The expanded article available as [a preprint](#).

TALKS AT INTERNATIONAL CONFERENCES

1. International Conference on Optics of Excitons in Confined Systems, Bath, UK, 09/2017 Poster. Substituted with oral talk due to visa issues.
2. International Conference on Physics of Light–Matter Coupling in Nanostructures, Chengdu, China, 05/2018 Oral talk
3. International Conference on New Trends in Quantum and Mesoscopic Physics, Erevan, Armenia, 06/2018 Oral talk

SKILLS

<i>Theory:</i>	quantum physics, solid state physics, quantum Hall effect
<i>Experiment:</i>	experienced with cryostats and vacuum equipment, lasers, optical spectrometers, streak camera, and optical fibers
<i>Manuscripts:</i>	LaTeX, Adobe Illustrator, HTML/CSS
<i>Programming:</i>	Python, LabView, C/C++, Java
<i>Languages:</i>	Russian, English

HOBBIES

Mountaineering, rock climbing, lindy hop.