

TATYANA IVANOVA

Bachelor of Physics

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EDUCATION

Master's degree - in progress

Quantum and hybrid materials, The Department of Physics and Engineering, ITMO University, St. Petersburg

September 2020 – Present

Bachelor of Laser Technology

The Department of Laser Technology, ITMO University, St. Petersburg

September 2016 – June 2020

- Average score: 4.76/5.0 (honours)
Graduate work: Laser tuning of exciton resonance in monolayers of transition metal dichalcogenides

MAIN PROJECTS

Mechanical deformation of atomically thin layers during stamp transfer

My contribution: Set up assembly, sample preparation, preliminary characterization, experimental data acquisition and data analysis (Origin).

Concurrent projects:

- Hybridization of inter- and intralayer excitons by coherent hole tunnelling between MoSe2 monolayers**
- Dynamically tunable photonic devices based on phase change materials**
- Experimental selection of parameters for exfoliation of superconductor BSCCO in controlled atmosphere**

My contribution: Sample preparation and preliminary characterization with far-field optical spectroscopy.

PUBLICATIONS

- Ivanova, T.**, et al. Patent of the Russian Federation No. 2742761 dated 10/02/2021.
- Ivanova, T.**, et al. Mechanical deformation of atomically thin layers during stamp transfer. **IOP Journal of Physics: Conference Series**
- Li, M., Sinev, I., Benimetskiy, F., **Ivanova, T.** et al. Experimental observation of topological Z2 exciton-polaritons in transition metal dichalcogenide monolayers. **Nat Commun** **12**, 4425 (2021).
- Kravtsov, V., Liubomirov, A. D., Cherbunin, R.V., Catanzaro, A., Genco, A. Gillard, D., Alexeev, E.M., **Ivanova, T.** et al. Spin-valley dynamics in alloy-based transition metal dichalcogenide heterobilayers. **2D Mater.** **8** 025011, (2021)
- Kravtsov, V., Khestanova, E., Benimetskiy, F.A., **Ivanova, T.** et al. Nonlinear polaritons in a monolayer semiconductor coupled to optical bound states in the continuum. **Light Sci. Appl.** **9**, (2020).
- Kravtsov, V., **Ivanova, T.** et al. Valley polarization of trions in monolayer MoSe2 interfaced with bismuth iron garnet. **2D Materials - 2022, Vol. 9, No. 1, pp. 015019**
- Kondratyev, V., Benimetskiy, F., **Ivanova, T.** et al. Electrically tunable trion-polaritons in MoSe2/hBN heterostructure integrated with a photonic crystal slab. **AIP Conference Proceedings** **2300**, 020062 (2020)

SCHOLARSHIPS

Personal Scholarship from the Fund of Vladimir Potanin

February 2021 – Present

State Academic Research Scholarship

September 2020 – Present

Grant for young scientists NIRMA

December 2021 – April 2022

ICFO - Student Research Fellowship

July 2021 – Desember 2021

MAIN SKILLS

Device fabrication and characterisation:

- Exfoliation of large-area monolayers of TMD (up to 500 um)
- Assembly of vdW heterostructures with alignment
- Transfer of heterostructures onto non-uniform and nanopatterned surfaces
- Electron beam lithography (EBL)
- Thermal and e-beam evaporation
- Atomic Force Microscopy (AFM) imaging
- Photoluminescence imaging and spectroscopy
- Electron transport
- Scanning electron microscopy (SEM)

CONFERENCES

51st (LI) Scientific and Educational Conference of ITMO University

02.02.2022-05.02.2022

International Conference on Metamaterials and Nanophotonics METANANO 2021

13.09.2021-17.09.2021

Poster: Mechanical deformation of atomically thin layers during stamp transfer

Metanano School - Summer School on Photonics of 2D materials 2021

19.07.2021-23.07.2021

Recieved a certificate for successfully passing the exam (top 10) and awarded 3 ECTS credits

Workshop and Summer School in Basics and Applications of Nanolithography

29.06.2021-01.07.2021

Salamanca University, Spain

Report: Hybridization of inter- and intralayer excitons by coherent hole tunnelling between MoSe2 monolayers