

Dmitry Sergeevich Smirnov

Ioffe Institute

26 Politekhnikeskaya, St Petersburg 194021, Russian Federation

Email: smirnov@mail.ioffe.ru

WoS Researcher ID: [O-5670-2019](#)

Scopus AuthorID: [57204021602](#)

ORCID: [0000-0001-9872-6130](#)

Born: November 17, 1990—Leningrad, USSR

Nationality: Russian

Current position

Senior researcher, [Sector of Theory of Quantum Coherent Phenomena in Solids, Ioffe Institute](#)

Areas of specialisation

Semiconductor Theory, Spin-Related Phenomena, Light-Matter Coupling

Research activity

Over 50 publications, over 500 citations, h-index is 15

Education

- 2012 BSc (with honor) in Technical Physics “Pump-probe theory of electron spins in spherical nanocrystals” at Polytechnical University, St. Petersburg
- 2014 MSc (with honor) in Physics “Spin noise theory of localized electrons and electron-hole complexes in semiconductors” at Academic University, St. Petersburg
- 2018 PhD in Physics of Semiconductors “Spin noise theory of charge carriers in semiconductor nanostructures” at Ioffe Institute, St. Petersburg

Awards

- 2013 The best talk on XI Russian Conference on Semiconductor Physics
- 2014 Medal of Russian Academy of Sciences and Prize for Young Researchers
- 2015 A. F. Ioffe Institute Young Scientist Award
- 2019 A. F. Ioffe Institute Prize (together with A. A. Toropov, E. A. Evropeitsev, V. N. Jmerik, D. V. Nechaev, and M. O. Nestoklon)

Selected publications

- 2017 D. S. Smirnov and L. E. Golub. Electrical Spin Orientation, Spin-Galvanic, and Spin-Hall Effects in Disordered Two-Dimensional Systems. *Phys. Rev. Lett.* **118**, 116801 (2017).
- 2019 I. D. Avdeev and D. S. Smirnov. Hyperfine interaction in atomically thin transition metal dichalcogenides. *Nanoscale Adv.* **1**, 2624 (2019).
- 2020a A. A. Toropov, E. A. Evropeitsev, M. O. Nestoklon, D. S. Smirnov, T. V. Shubina, V. Kh. Kaibyshev, G. V. Budkin, V. N. Jmerik, D. V. Nechaev, S. Rouvimov, S. V. Ivanov, and B. Gil. Strongly Confined Excitons in GaN/AlN Nanostructures with Atomically Thin GaN Layers for Efficient Light Emission in Deep-Ultraviolet. *Nano Lett.* **20**, 158 (2020).
- 2020b D. S. Smirnov, T. S. Shamirzaev, D. R. Yakovlev, and M. Bayer. Dynamic Polarization of Electron Spins Interacting with Nuclei in Semiconductor Nanostructures. *Phys. Rev. Lett.* **125**, 156801 (2020).
- 2021a A. V. Shumilin and D. S. Smirnov. Nuclear Spin Dynamics, Noise, Squeezing, and Entanglement in Box Model. *Phys. Rev. Lett.* **126**, 216804 (2021).
- 2021b D. S. Smirnov, V. N. Mantsevich, and M. M. Glazov. Theory of optically detected spin noise in nanosystems. *Phys. Usp.* **64**, 923 (2021).
- 2022a V. N. Mantsevich and D. S. Smirnov. Current-induced hole spin polarization in a quantum dot via a chiral quasi bound state. *Nanoscale Horiz.* **7**, 752 (2022).
- 2022b V. O. Kozlov, N. S. Kuznetsov, D. S. Smirnov, I. I. Ryzhov, G. G. Kozlov, and V. S. Zapasskii. Spin Noise in Birefringent Media. *Phys. Rev. Lett.* **129**, 077401 (2022).
- 2022c D. S. Smirnov, J. Holler, M. Kempf, J. Zipfel, P. Nagler, M. V. Ballottin, A. A. Mitioglu, A. Chernikov, P. C. M. Christianen, C. Schüller, and T. Korn. Valley-magnetophonon resonance for interlayer excitons. *2D Mater.* **9**, 045016 (2022).
- 2022d N. V. Leppenen and D. S. Smirnov. Optical measurement of electron spins in quantum dots: quantum Zeno effects. *Nanoscale* **14**, 13284 (2022).
- 2023 E. Kirstein, D. S. Smirnov, E. A. Zhukov, D. R. Yakovlev, N. E. Kopteva, D. N. Dirin, O. Hordichuk, M. V. Kovalenko, and M. Bayer. The squeezed dark nuclear spin state in lead halide perovskites. *Nat. Commun.* **14**, 6683 (2023).
- 2024 A. V. Shumilin, T. S. Shamirzaev, and D. S. Smirnov. Spin light emitting diode based on exciton fine structure tuning in quantum dots. *Phys. Rev. Lett.* **132**, 076202 (2024).

Teaching

- 2015—2017 Practical course “Theoretical mechanics” at Academic University.
- 2018—2021 Practical course “Electrodynamics of continuous media” at Academic University.
- 2022 Practical course “Physics of low-dimensional systems” at Academic University.
- 2023 Lecture course “Introduction to physics of nanostructures” at Academic University.
- 2024 Lecture course “Optics of semiconductors” at Academic University.