


DR. DENIS V. KHOMITSKY

UNIVERSITY	National Research Lobachevsky State University of Nizhny Novgorod
PROFICIENCY IN ENGLISH	Advanced
MAJOR OF PH.D. PROGRAMME	Physics & Astronomy
CODE OF PH.D. PROGRAMME	03.06.01
RESEARCH PROJECTS OF PROSPECTIVE SCIENTIFIC SUPERVISOR	RESEARCH PROJECT TEAM PARTICIPANT: - Grant Project under the Russian MSHE № 0729-2020-0058, 2020-2022. - RSF Grant № 19-19-00545, 2020.
TOPICS FOR PROSPECTIVE PH.D. RESEARCH	- Dynamic effects for electrons and holes in quantum dots with strong spin-orbit interaction. - Electronic and transport properties of structures based on topological insulators with magnetic barriers.
 <p style="text-align: center;">Research supervisor: DR. DENIS V. KHOMITSKY, Associate Professor, Candidate of Science / Ph.D., Physics & mathematics (2003, Lobachevsky University)</p>	RESEARCH AREA: Spintronics of low-dimensional semiconductor structures and topological insulators (theory and models)
	SUPERVISOR'S RESEARCH INTERESTS: - Quantum effects in few-level structures - Spintronics of semiconductor structures - Models of structures based on topological insulators - Spin and tunneling dynamics under the presence of external non-stationary fields
	RESEARCH HIGHLIGHTS: <ul style="list-style-type: none"> • Highly-equipped labs & research environment, including Supercomputer «Lobachevsky». • Grant project prospective involvement. • Prospective participation in international joint research projects (Spanish universities).
	SUPERVISOR'S SPECIFIC REQUIREMENTS: <ul style="list-style-type: none"> • Good proficiency in quantum mechanics and physics of solids. • Good skills for mathematical & numerical solving problems in the field of mathematical physics. • Mastery of special software (Wolfram Mathematica, Fortran, etc).
	SUPERVISOR'S PUBLICATIONS: <ul style="list-style-type: none"> • D.V. Khomitsky, E.A. Lavrukhina, E.Ya. Sherman, "Spin rotation by resonant electric field in few-level quantum dots: Floquet dynamics and tunneling" <i>Phys. Rev. Applied</i>, V.14, 014090 (2020) • Д.В. Хомицкий, Д.А. Кулаков, «Рассеяние волновых пакетов на поверхности топологических изоляторов в присутствии потенциальных барьеров с намагниченностью» <i>ЖЭТФ</i>, т.157, вып.1, с.20 (2020) • D.V. Khomitsky, E.A. Lavrukhina, E.Ya. Sherman, "Electric dipole spin resonance at shallow donors in quantum wires", <i>Phys. Rev. B</i>, V.99, 014308 (2019) • Р.В. Туркевич, Д.В. Хомицкий, «Динамика электронных состояний и магнитопоглощение в трёхмерных топологических изоляторах в квантующем магнитном поле», <i>ЖЭТФ</i>, т.153, вып.2, с.283 (2018) • J. Budagosky, D.V. Khomitsky, E.Ya. Sherman, Alberto Castro, "Shaped electric fields for fast optimal manipulation of electron spin and position in a double quantum dot", <i>Phys. Rev. B</i>, V.93, 035423 (2016)
FELLOWSHIPS AND HONORS	Member of the American Physical Society