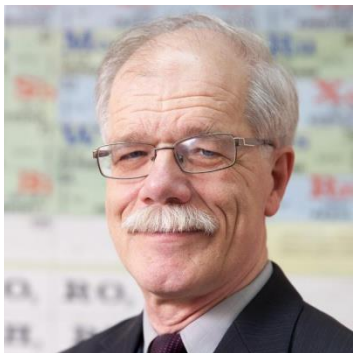


SERGEY V. ZELENTSOV

University	National Research Lobachevsky State University of Nizhny Novgorod
Level of English proficiency	C1
Educational program and field of the educational program for which the applicant will be accepted	1.4. Chemical Sciences 1.4.4. Physical chemistry
List of research projects of the potential supervisor (participation/leadership)	Russian Foundation for Basic Research, project No. 01-03-33113 — research team leader. Russian Science Foundation, project No. 23-19-00763 - research team participant.
List of the topics offered for the prospective scientific research	<ul style="list-style-type: none"> • Study of photochemical reactions of nitro compounds by quantum chemistry methods. • Study of mechanisms of formation of resist reliefs by methods of mathematical modelling and quantum chemistry • Peculiarities of application of quantum chemistry to study potential energy surfaces of molecules in excited states.
 <p>Research supervisor: Sergey V. Zelentsov, Doctor of Sciences (Chemistry) (Russia) (Lobachevsky State University of Nizhny Novgorod)</p>	Chemistry and Materials Sciences
	Supervisor's research interests Quantum chemistry, photochemistry, plasma chemistry, potential energy surface method, reaction mechanisms in high energy chemistry, photolithography, electron lithography, photochemistry of azides and nitro compounds, mathematical methods in chemistry.
	Research highlights <ul style="list-style-type: none"> • <i>Knowledge of basic principles and methods of quantum chemistry.</i> • <i>Proficiency in the Python language.</i> • <i>Good command of English</i> • <i>Computer skills in Windows/Linux systems.</i>
	Supervisor's main publications <ol style="list-style-type: none"> 1. С. В. Зеленцов, Д. В. Овсянников, А. Пыслару, ФОТОХИМИЧЕСКОЕ ОКИСЛЕНИЕ ДИМЕТИЛСУЛЬФИДА ТРИПЛЕТНЫМИ НИТРОСОЕДИНЕНИЯМИ, ХИМИЯ ВЫСОКИХ ЭНЕРГИЙ, 2023, том 57, № 4, с. 271–275, DOI: 10.31857/S0023119323040162 2. Plekhovich, S.V. Zelentsov, Yu.V. Minasyan, and I.T. Grimova Modeling of the Reaction of Nitrobenzene with Olefins: Influence of Electron-Donating and Electron-Withdrawing Substituents, High Energy Chemistry, 2022, Vol. 56, No. 1, pp. 32–37. 3. S. D. Ovsyannikov D.V., Zelentsov S.V. Reactivity of Aliphatic and Aromatic Nitrocompounds in the Triplet State with Respect to Amines, Russian Journal of Physical Chemistry A. No. 8. V. 94. 2020. P. 1603-1606.

	<p>4. Ovsyannikov D.V., Zelentsov S.V., Fomichev D.A. Study of Charge Transfer in Radical Reactions of Hydrogen Atom Detachment Involving Triplet Nitro Compounds, High Energy Chemistry. No. 4. V. 54. 2020. P. 254-258.</p> <p>5. Mochalov L., Logunov A., Prokhorov I., Sazanova T., Kudrin A., Yunin P., Zelentsov S.V., Letnianshik A., Starostin N.V., Boremann G., Vorotyntsev V. Plasma-Chemical Synthesis of Lead Sulphide Thin Films for Near-IR Photodetectors, Plasma Chemistry and Plasma Processing. No. 41. 2021. P. 493-506.</p> <p>6. Starostin N, Zelentsov S, Letnianshik A., Mochalov L., Dorosz D., Kochanowicz M., Logunov A., Boreman G., Vorotyntsev V. Optical emission spectroscopy of lead sulfide films plasma deposition // Spectrochimica Acta - Part A: Molecular and Biomolecular Spectroscopy. V. 241. 2020. P. 118629.</p>
	<p>Results of intellectual activity</p> <p>Общее число – более 25.</p> <ul style="list-style-type: none"> - The use of an atomic force microscope and photolithography to obtain resistive masks with a combination of very different sizes of pattern elements. A.V. Kruglov, V.E. Kotomina, S.V. Zelentsov, I.N. Antonov, O.N. Gorshkov, A method of manufacturing a resistive mask with an extended range of image resolution, Pat. RF № 2 610 782. Publ. 02/15/2017. Bull. Number 5. - Modification of the composition of the photoresist based on cresol-formaldehyde resin and a derivative of orthonaphthoquinone diazide in order to increase the maximum temperature at which it is possible to apply an “exploding” layer. A.F. Lambakshev, V.E. Kotomina, S.V. Zelentsov, I. N. Antonov, O. N. Gorshkov, Method of explosive photolithography, Pat. RF number 2610843. Publ. 02.16.2017. - V.I. Lebedev, V.E. Kotomina, S.V. Zelentsov, E.S. Leonov, The method of forming a photoresist mask of a positive type (options), Pat. RF № 2552461. Publ. 06.10.2015. Bull. No. 16, etc.