

MAXIM RYBIN (rybmaxim@gmail.com)

Philosophy Doctor, Physics (2013)

Ecole Centrale De Lyon, Lyon Institute of Nanotechnologies, Lyon, France, 2009-2013.

Title of thesis: "Graphene-photonic crystal hybrid structures for light harnessing".

Philosophy Doctor, Physics (2012)

A.M. Prokhorov General Physics Institute, Moscow, Russia, 2009-2012.

Title of thesis: "Graphene and based on it structures for photonics".



Research Profile

Since 2007 I have been working on investigation of carbon nanomaterials including synthesis of graphene by different methods, studying of its optical and electronic properties, application of graphene in various of devices such as lasers, gas sensors, transparent conductive films, hydrophobic coatings etc. In 2009 I extended my interests to investigation of photonic crystal structures, I have been working on computer simulation and fabrication of one dimensional photonic crystal reflective structures based on silicon, studying of its optical properties such as reflection, absorption, photoluminescence etc. Since 2014 I focused my interests on doping of graphene by plasma treatment. The doping of graphene results in changing of electronic structure of initial graphene which led to changing of optical and electrical properties. Therefore, the graphene properties can be adjusted by controlling the concentration of doping impurities.

During the working in nanotechnology area I got two PhD diplomas (in Russia and in France), I was scientific director of two students, I successfully managed four young research projects, I won three scientific prizes and two of them were international, I published 14 articles and participated in 19 conferences.

Publications in 2016

1. M. Rybin, A. Pereyaslvtsev, T. Vasilieva, V. Myasnikov, I. Sokolov, A. Pavlova, E.A. Obraztsova, A. Khomich, V. Ralchenko, E.D. Obraztsova "Efficient nitrogen doping of graphene by plasma treatment", *Carbon* 96 (2016) 196-202
2. A. Pereyaslvtsev; M. Rybin; T. Vasilieva; V. Miasnikov and I. Sokolov "Experimental study of nitrogen-doped graphene by spectroscopic and probe methods of surface analysis", *J. Nanophoton.* 10(1), 012521 (2016).
3. Ivan I. Kondrashov ; Igor V. Sokolov ; Pavel S. Rusakov ; Maxim G. Rybin ; Alexander A. Barmin, Razhudin N. Rizakhanov ; Elena D. Obraztsova "Electrical properties of gas sensors based on graphene and single-wall carbon nanotubes", *J. Nanophoton.* 10(1), 012522 (2016).