Dmitry V. Krasnikov, PhD

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Work experience - Science

Skolkovo Institute of Science and Technology (Moscow), Laboratory of Nanomaterials (2017-curr.time),
Boreskov Institute of Catalysis (Novosibirsk), Laboratory of nanostructured carbon materials (2009-2017)

Work experience - Teaching

Skolkovo Institute of Science and Technology:

- Catalysis (instructor; 2022)
- Aerosol Science and Technology (co-instructror; 2018-2022)
- Carbon Nanomaterials (lecture on "Mechanisms for nanocarbon formation"; exercise on carbon nanotube growth; 2017 – 2022)
- Design of Chemical Sensors: from Fundamentals to Applications (lecture on "Surface chemistry"; exercise on CVD synthesis of materials; 2021 – 2022)

Novosibirsk State University:

- MOOC "Physical Chemistry" coursera.org/learn/fizicheskaya-khimiya (2018-curr.time)
- Physical chemistry of Heterogeneous catalysis (instructor; 2017)
- Kinetics of Heterogeneous Catalytic Reactions (instructor; 2016)
- Chemical Kinetics»(seminars; 2014-2018)

Professional skills

The fields of expertise: physical chemistry, aerosol science, catalysis, nanotechnology, composites, and carbon materials. Selected scientific studies performed:

- Advanced optimization of carbon nanotube synthesis with machine learning
- Development of new reactors for carbon nanotube synthesis
- Covalent and non-covalent functionalization of carbon nanotube surface
- One-step production of single-crystal graphene of a cm size
- Investigation on the formation of the active component of the catalyst for nanotube growth (thesis)
- The synthesis and the processing of polymer composites and suspensions based on nanotubes

Education

Novosibirsk State University (Novosibirsk, Russia), the chair of Catalysis and Adsorption, the Department of Natural Sciences (undergraduate student: 2007- 2012, aver. mark "5.0"; PhD student: 2012 - 2015)

Additional Education

Course of additional education "Innovative Entrepreneurship", Novosibirsk State University (2010)
Course of additional education s**MBA** (from student to master of business administration) (2012-2013)
Online course "Writing in the sciences" (Stanford University; 2016)
Course "Facilitating and Assessing Learning" (Skolkovo Institute of Science and Technology; 2021)

Achievements

h-index (Scopus): 14

Co-author of 50 scientific papers, 1 book, and 5 patents

Thesis advisor of 1 PhD thesis, Scientific (co)advisor of 8 MSc thesis, and 2 BSc diplomas	2019-2021
Grant of the President of Russia for young scientists providing cutting edge research	2022-2023
Ist award for the poster presentation at IV national congress on catalysis "Ruscatalysis"	2021
Zhores Alferov Scholarship for young scientists in physics and nanotechnology	2020
Winner of mobility grant by Academy of Finland (prof. Esko Kauppinen Aalto University)	2020-2021
EdCrunch Award OOC "For the ability to clearly explain the most abstract ideas"	2018
Best oral presentation of IV Scientific Conference "Boreskov Readings"	2017
Ist award in the contest of scientific researches of Boreskov Institute of Catalysis	2015
Diplomas in the contest for young scientist researches of Boreskov Institute of Catalysis	2014, 2016
Winner of personal grant of Prokhorov fund	2013

Scholarship students of "British Petroleum" (2013, Schlumberger (2012) "Baker Hughes" (2011,2010)

Zamaraev stipend for PhD students of Boreskov Institute of Catalysis	2013
Winner of personal grant for innovative research ("U.M.N.I.C." program of RF)	2013-2015
"**E**FCATs PhD student award" at XI and XII European congresses on catalysis	2013, 2015
Stipend of the President of Russia for PhD students providing innovative research	2012-2014
Diploma for best talk at workshop "Nanocarbons in electric and medical applications"	2012
Stipend of federal scholarship program of V. Potanin's foundation	2012
2nd place Diploma of scientific works of all-Russian contest of students and PhD students	2012
Academicians G. K. Boreskov and K. I. Zamaraev Stipend	2010-2011
Diplomas Scientific Students' Conference "Student and Scientific-Technological Advance"	2010-2012
V.A. Koptug stipend of the Municipality Novosibirsk	2009-2010
1st place Diploma in the I regional student Olympiad in the field of nanotechnology	2009
Stipend of Scientific Council of Department of Natural Sciences of the NSU	2008
3rd place Diploma all-Siberian school Olympiad in chemistry	2007

Additional activities

Secretary of organizing committee for:
II international conference "Applied Nanotoxicology and Nanotechnology" (2013, Baikal lake, Russia)
III International Workshop on "Electromagnetic Properties of Novel Materials" (2018, Moscow, Russia)
First virtual Bilateral (Russia-Finland) Conference on Functional Materials (BiC-FM, 2020)

Member of organizing committee of "GEN-Y" (Sochi, 2019): Skoltech Cross-Disciplinary Conference

Additional skills

Languages: English (CAE), Spanish (beginner) **Sports:** swimming
PC: HyperChem, Mathcad, Microsoft Office (VBA), Origin, Corel Draw, Photoshop, Matlab, SolidWorks

Selected peer-reviewed publications

1. Artem K. Grebenko, **Dmitry V. Krasnikov**, Anton V. Bubis , *et al.* "High-Quality Graphene Using Boudouard Reaction" Adv. Sci. 2022, 2200217, https://doi.org/10.1002/advs.202200217
2. **Dmitry V. Krasnikov**, Boris Yu. Zabelich, Vsevolod Ya. Iakovlev, *et al.* "A spark discharge generator for scalable aerosol CVD synthesis of single-walled carbon nanotubes with tailored characteristics" ***Chemical Engineering Journal***, (2019), 372, 462–470 https://doi.org/10.1016/j.cej.2019.04.173
3. Vsevolod Ya. Iakovlev, **Dmitry V. Krasnikov**, Eldar M. Khabushev, *et al.* "Artificial neural network for controlled synthesis of single-walled carbon nanotubes by aerosol CVD method" ***Carbon*** (2019), V. 153, 100-103, https://doi.org/10.1016/j.carbon.2019.07.013
4. Alexey P. Tsapenko, Stepan A. Romanov, Daria A. Satco, **Dmitry V. Krasnikov**, *et al.* "Aerosol-assisted fine-tuning of optoelectrical properties of SWCNT films" ***the Journal of Physical Chemistry Letters*** (2019), 10,14, 3961-3965, doi.org/10.1021/acs.jpclett.9b01498
5. Vsevolod Ya. Iakovlev, **Dmitry V. Krasnikov**, Eldar M. Khabushev, *et al.* "Fine-tuning of spark-discharge aerosol CVD reactor for single-walled carbon nanotube growth: the role of ex situ nucleation", ***Chemical Engineering Journal*** (2020), 383, 123073, https://doi.org/10.1016/j.cej.2019.123073

Media

- Artificial Neural Networks for nanotube synthesis
- Optimal activation of the catalyst for nanotube growth
- Carbon monoxide turns into large defectless graphene crystal under ambient pressure
- Carbon nanotube based filters (*in Russian*)
- Why do we need to protect ourselves from aerosols (*interview on a radio in Russian*)?