

Nikolay Dementev

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CITIZEN: Russian Federation



EDUCATION/ PROFESSIONAL EXPERIENCE

Chemist at “Profcosmetic”, Voronezh, Russia	August, 2019- present
Chemist at “Electropribor”, Voronezh, Russia	October, 2018- July, 2019
Chemist at “Migdal”, Voronezh, Russia	October, 2017- August, 2018
Deputy Head of the Central Plant Laboratory at “Electropribor”, Voronezh, Russia	June, 2016- October, 2017
Chemist at “Electropribor”, Voronezh, Russia	February, 2016- June, 2016
Chemist at “DEKOR”, Voronezh, Russia	March, 2015- December, 2015
Specialist at “DPD in Russia”, Voronezh, Russia	July, 2014- March, 2015
Operator in “KLEVER” Call-Center, Voronezh, Russia	May, 2014- June, 2014
Postdoc in Nakashima Group at Kyushu University	April, 2012- April, 2013
Postdoc in Nakashima Group at Kyushu University (Supported by JSPS Postdoctoral Fellowship)	March, 2011- March, 2012
Ph.D. in Chemistry Department of Chemistry, Temple University, Philadelphia, PA U.S.A. (Dissertation title: Fluorescence Labeling of Surface Species as an Efficient Tool for Detection, Identification and Quantification of Oxygen Containing Functionalities on Carbon Materials)	January, 2011
MA in Chemistry Department of Chemistry, Temple University, Philadelphia, PA U.S.A.	May, 2010
Physical Chemistry teaching assistant (Temple University, U.S.A.)	2007
Leader of Carbon Research Team in Borguet Group (Temple University, U.S.A.) Mentorship for undergraduate students (9 to date) involved in carbon material research.	2005-2010
Management of collaborative projects with (Temple University, U.S.A.) <ul style="list-style-type: none">- Professor R. Giuliano research group (Villanova University, fluorescence labeling projects)- Professor Y. Gogotsi research group (Drexel University, fluorescence labeling of carbon nanopipettes and the purification of carbon nanotubes projects)- Professor H. Bau research group (University of Pennsylvania, the use of carbon nanopipettes in non-invasive electrochemical studies of bio-cells)	2005-2010

- Instrumentation teaching assistant (Temple University, U.S.A.)** 2007-2010
 Provided training and technical support for students and Temple University personnel to use departmental instruments; writing manuals, tutorials and procedures; maintenance, troubleshooting and repair.
 Instruments that were under my supervision:
- FTIR spectrometers (Mattson, Bruker)
 - HPLC (Hewlett-Packard)
 - GCMS (Hewlett-Packard)
 - UV-VIS-NIR spectrophotometers (Hewlett-Packard, Jasco)
 - ASAP 2020 instruments (BET analysis)
 - Thermogravimetric analyzers (PerkinElmer, Pyris 6 TGA)
 - Scanning tunneling microscopes (Agilent technologies)
 - Atomic-force microscopes (Agilent technologies)
 - Potentiostats for electrochemical studies (CH Instruments)
 - Furnaces for the high temperature treatment of materials
 - Fluorimeters (Jasco, Horiba, PTI)
- Ph.D. Graduate student** 2004-2010
 Department of Chemistry,
 Temple University, Philadelphia, PA
 U.S.A.
- Ph.D. Graduate student** 2003-2004
 Chemistry Department,
 Voronezh State University, Voronezh
 Russia
- Research/Teaching Assistant** 1999-2002
 Chemistry Department,
 Voronezh State University, Voronezh
 Russia
- Marketer** 1997-1998
 Stock Company “Industrial Goods-2”, Voronezh, Russia.
- Supervisor of stainless steel passivation unit** 1995-1997
 Voronezh Mechanical Plant, Voronezh, Russia.
- Master Degree in Chemistry** (5 years of study), June, 1995
 Chemistry Department,
 Voronezh State University, Voronezh,
 Russia (Thesis title: Studies of the underpotential dissolution of copper in solutions of sulfuric acid)
- Undergraduate student** 1990-1995
 Chemistry Department, Voronezh State University, Voronezh, Russia

PUBLICATIONS

1. On Existence of Prime Numbers Generator
Nikolay Dementev
viXra:2003.0171 [Number Theory] (2020)
2. On Testability of “Relative State” Formulation of Quantum Mechanics
Nikolay Dementev
viXra:1710.0019 [Quantum Physics] (2017)
3. Aristotle’s Answer on Russell’s Paradox
Nikolay Dementev
viXra:1706.0321 [Set Theory and Logic] (2017)
4. One Observation About Primes
Nikolay Dementev
viXra:1701.0475 [Number Theory] (2017)
5. Relativity and Quantum Mechanics the Route Towards Unification
Nikolay Dementev
viXra:1601.0363 [Quantum Physics] (2016)
6. Generalized Determinant
Nikolay Dementev
viXra:1403.0958 [Algebra] (2014)
7. One-Step Salt-Assisted Deposition of Carbon Material onto the Polymer Substrate
Nikolay Dementev
viXra:1402.0112 [Chemistry] (2014)
8. Primes for a Caveman
Nikolay Dementev
viXra:1303.0019 [Number Theory] (2013)
9. Oxygen-containing functionalities on the surface of multi-walled carbon nanotubes quantitatively determined by fluorescent labeling.
Nikolay Dementev, Richard Ronca, and Eric Borguet
Applied Surface Science, 258(24) 10185-10190 (2012)
10. Fluorescence Quenching of Dyes Covalently Attached to Single-Walled Carbon Nanotubes
Cheek Fai Chiu, Nikolay Dementev, and Eric Borguet
Journal of Physical Chemistry A, 115 (34) 9579-9584 (2011)
Listed in top 10 most read papers by the journal as of October 2011
11. Thermodynamical insight on the role of additives in shifting the equilibrium between white and grey tin
Nikolay Dementev
arXiv:1011.2275v1[cond-mat.stat-mech] (2010)
12. Establishment of the conserved operators using variational principle
Nikolay Dementev
arXiv:1011.1704v1[quant-ph] (2010)

13. Detecting and quantifying oxygen functional groups on graphite nanofibers by fluorescence labeling of surface species
Timothy Pellenbarg, Nikolay Dementev, Riffard Jean-Gilles, Carol Bessel, Eric Borguet, Norman Dollahon and Robert Giuliano
Carbon 48, 15, 4256-4267 (2010)
14. Purification of carbon nanotubes by dynamic oxidation in air
Nikolay Dementev, Sebastian Osswald, Yury Gogotsi and Eric Borguet
J. Mater. Chem., 19, (42), 7904-7908 (2009)
15. Fluorescence Labeling and Quantification of Oxygen-Containing Functionalities on the Surface of Single-Walled Carbon Nanotubes
Nikolay Dementev, Xue Feng and Eric Borguet
Langmuir, 25, 13, 7573-7577 (2009)
16. Chemical Labeling for Quantitative Characterization of Surface Chemistry
Yangjun Xing, Nikolay Dementev and Eric Borguet
Current Opinion In Solid State & Materials Science 11(5-6), 86-91 (2007)
17. Detection of Low Concentration Oxygen Containing Functional Groups on Activated Carbon Fiber Surfaces through Fluorescent Labeling
Xue Feng, Nikolay Dementev, Wenguo Feng, Radisav Vidic, and Eric Borguet
Carbon 44, 7, 1203-1209 (2006)
18. Nonstoichiometry and solubility of impurity in In-doped PbTe films on Si substrates
Samoylov, A. M., Buchnev, S. A., Dement'ev, N. N., Synorov, Y. V., Zlomanov, V. P.
Materials Science In Semiconductor Processing,6, 5-6, 327-333 (2003)
19. Effect of VO^{2+} cation on the nitric acid oxidation of indium phosphide
Mittova, I. Y., Soshnikov, I. M., Dement'ev, N. N., Ponomareva, S. A., Kashkarov, V. M.
Inorganic Materials, 37, 1, 5-8 (2001)

CONFERENCE PRESENTATIONS

1. Novel approaches to purification and separation of carbon nanotubes
Nikolay Dementev, Shanshan Wu and Eric Borguet
38th Conference of North American Thermal Analysis Society
Philadelphia, PA August 15-18, 2010
2. A New Method for Supersolubilization of Ultrapure Carbon Nanotubes
Nikolay Dementev, and Eric Borguet
217th Electrochemical Society Meeting
Vancouver, BC, Canada April 25-30, 2010
3. Electrochemical Detection of Nitric Oxide by Carbon Nanopipettes
Fei Li, Nikolay Dementev, Roozbeh Ghavami, Riju Singhal, Yury Gogotsi and Eric Borguet
217th Electrochemical Society Meeting
Vancouver, BC, Canada April 25-30, 2010
4. Raman Spectroscopy as a Powerful Analytical Tool for Evaluation of Purity and Integrity of Carbon Nanotubes
Nikolay Dementev, invited talk at
The Raman Spectroscopy Roundtable
Philadelphia, PA April 12, 2010

5. Identification and Quantification of Functional Groups on Carbon Nanopipettes via Fluorescence Labeling
Nikolay Dementev, Cheuk Fai Chiu, Roozbeh Ghavami, Fei Li, and Eric Borguet
The Philadelphia Section of the American Chemical Society
Philadelphia, PA
January 21, 2010
6. Dynamic Oxidation: A Novel Approach to Produce Analytically Pure Carbon Nanotubes
Nikolay Dementev, Sebastian Osswald, Yury Gogotsi, and Eric Borguet
Discovery to Commercialization Conference
Philadelphia, PA
October 15-16, 2009
7. Identification and Quantification of Oxygen-Containing Functionalities on the Surface of Carbon Nanotubes by Fluorescence Labeling of Surface Species (FLOSS)
Nikolay Dementev, Xue Feng, and Eric Borguet
69th Physical Electronics Conference
New Brunswick, NJ
June 16-19, 2009
8. Dynamic Annealing: a Route Toward Analytically Pure Carbon Nanotubes.
Nikolay Dementev, Sebastian Osswald, Yury Gogotsi, and Eric Borguet
215th Electrochemical Society Meeting
San Francisco, CA
May 24-29, 2009
9. Dynamic Oxidation: An Easily Scalable Technique to Produce Analytically Pure Carbon Nanotubes
Nikolay Dementev and Eric Borguet
Nanotech Conference and Expo 2009
Houston, TX
May 3-7, 2009
10. Purification of SWCNTs by Dynamic Annealing
Nikolay Dementev and Eric Borguet
Lab-to-Market Forum, Nanotechnology Commercialization Group
Philadelphia, PA
April 23, 2009
11. Thermal Oxidation to Produce Carbon Nanotubes Free of Carbon Impurities
Nikolay Dementev, Sebastian Osswald, Yury Gogotsi, and Eric Borguet
The Philadelphia Section of the American Chemical Society
Philadelphia, PA
January 22, 2009
12. Recent Achievements in the Purification of Carbon Nanotubes: Dynamic Annealing in Air.
Nikolay Dementev and Eric Borguet
Thermal Analysis Forum of Delaware Valley, Annual Poster Session,
Claymont, DE
December 10, 2008
13. Controlling and Determining Purity of Carbon Nanotubes.
Nikolay Dementev and Eric Borguet
Eastern Analytical Symposium & Exposition,
Somerset, NJ
November 17-20, 2008
14. Thermoanalysis as a Tool for the Evaluation of Chemical Composition, Purity and Purification Protocols of Carbon Nanotubes (Invited Talk as a result of 1st prize award at Annual Poster Session)
Nikolay Dementev, Dmitry Kazachkin, and Eric Borguet
Thermal Analysis Forum of Delaware Valley, Spring Symposium 2008,
Conshohocken, PA
March 18, 2008

15. Thermoanalysis as a Tool for the Evaluation of Chemical Composition, Purity and Purification Protocols of Carbon Nanotubes
Nikolay Dementev (1st prize award), Dmitry Kazachkin, and Eric Borguet
Thermal Analysis Forum of Delaware Valley, Annual Meeting and Poster Session,
Claymont, DE December 6, 2007
16. Fluorescence Labeling and Quantification of Oxygen-Containing Functionalities on the Surface of Carbon Nanotubes
Nikolay Dementev, Xue Feng and Eric Borguet
American Chemical Society Middle Atlantic Regional Meeting,
Ursinus College, Collegeville, PA May 16 - 18, 2007
17. Determining Functionalities on the Surface of Carbon Nanotubes by Fluorescence Labeling
Nikolay Dementev, Xue Feng and Eric Borguet
American Chemical Society Meeting, the Philadelphia Section,
La Salle University, Philadelphia, PA January 18, 2007

AWARDS

1. The Japan Society for the Promotion of Science Postdoctoral Fellowship March, 2011
2. 3rd prize award for poster presentation at Discovery to Commercialization Conference, Philadelphia, PA. October 15-16, 2009
3. Francis H. Case Fellowship. The award recognizes outstanding research conducted by graduate students. The fellowship will provide the student with partial support for the Fall semester of 2009. August 2009
4. Invited to present research at Thermal Analysis Forum of Delaware Valley, Spring Symposium March 18, 2008
5. 1st prize award for poster presentation at Thermal Analysis Forum of Delaware Valley, Annual Meeting and Poster Session, Claymont, DE December 6, 2007

PATENT

1. Purification of Single Walled Carbon Nanotubes by Dynamic Annealing
Nikolay Dementev, and Eric Borguet
In conjunction with the Temple University's Office of Technology Transfer, an International Patent Application has been filed with the U.S. Patent and Trade Office in November 2009, based on a Provisional Patent Application filed in November 2008 (No. 61/114,679)