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Graphene at fluidic interfaces

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Curriculum Vitae

Liubov A. Belyaeva was born in Naberezhnie Chelny, Russia, on July 7th 1990.

She attended primary and secondary schools in Elabuga, Russia, and high school with the focus on Mathematics and Physics in Naberezhnie Chelny, from which she graduated in 2007.

In 2007 she was admitted to the Department of Materials Sciences of the Moscow State University, where she received her Bachelor degree in Materials Science in 2011 with the thesis "Disaggregation and formation of a secondary structure in detonation nanodiamonds" (advisor prof. Michael V. Korobov).

She completed her master studies at the Department of Materials Sciences of the Moscow State University, and received her Master degree in Chemistry in 2013. Her master research was focused on graphene and graphite oxide solvates and adaptation of the thermodynamic methods for the characterization of nanomaterials, and yielded the thesis "Thermodynamic properties of graphite oxide solvates" (advisor prof. Michael V. Korobov).

As a part of her master studies, in 2012 she undertook an internship at the University of Erlangen-Nuremberg, Germany, in the group of Functional Carbon Allotropes, where she worked on the hydrogenation of graphene under modified Birch conditions (advisor prof. Andreas Hirsch).

In November 2014 she started a joint PhD between Chemistry and Physics departments of Leiden University, in the group of Supramolecular and Biomaterials Chemistry, under supervision of Gregory F. Schneider and with Jan Aarts and Alexander Kros as promotors. Her work mainly focused on the investigation and development of liquid platforms for graphene application and is summarized in this thesis.

During her PhD she collaborated with the Leiden Institute of Physics, in particular with the groups of prof. Jan Aarts and prof. Sense Jan van der Molen. She supervised bachelor and master students, and assisted in the practical and laboratory courses "Practicum Basisvaardigheden", "Scheikunde" and "Natuurkunde".

She also had the opportunity to present her work in various workshops and conferences in the Netherlands, France and Greece:

- CHAINS 2017, Veldhoven, Netherlands. Hydrophilicity of free-floating graphene on water. Poster presentation.
- Graphene week 2017, Athens, Greece. Hydrophilicity of free-floating graphene on water. Oral presentation.
- European Conference on Chemistry of Two-Dimensional Materials (Chem2DMat) 2017, Strasbourg, France. Molecular caging of graphene with cyclohexane: a chemical platform for liquid-liquid electronics and transfer. Poster presentation.
- CHAINS 2016, Veldhoven, Netherlands. Molecular caging of graphene with cyclohexane: a chemical platform for liquid-liquid electronics and transfer. Poster presentation.

List of publications

1. A. V. Prydatko*, L.A. Belyaeva*, L. Jiang, L. M. C. Lima and G. F. Schneider. Contact angle measurement of free-standing square-millimeter single-layer graphene*. Nature Communications* 9, 4185, **2018***.* * *Equal contribution*
2. B. Bera, N. Shahidzadeh, H. Mishra, L.A. Belyaeva, G.F. Schneider and D. Bonn. Wetting of water on graphene nanopowders of different thicknesses. *Applied Physics Letters* 112 (15), 151606, **2018**.
3. L.A. Belyaeva, P.M.G. van Deursen, K.I. Barbetsea and G.F. Schneider. Hydrophilicity of graphene in water through transparency to polar and dispersive interactions. *Advanced Materials* 30 (6), 1703274, **2018**.
4. L.A. Belyaeva, W. Fu, H. Arjmandi-Tash and G.F. Schneider**.** Molecular caging of graphene with cyclohexane: transfer and electrical transport. *ACS Central Science* 2 (12), 904-909, **2016**.
5. H. Arjmandi-Tash, L.A. Belyaeva and G.F. Schneider. Single molecule detection with graphene and other two-dimensional materials: nanopores and beyond. *Chemical Society Reviews* 45 (3), 476-493, **2016**.
6. S. You, J. Yu, B. Sundqvist, L. A. Belyaeva, N. V. Avramenko, M.V. Korobov and A. V. Talyzin. Selective intercalation of graphite oxide by methanol in water/methanol mixtures. *The Journal of Physical chemistry C*, 117, pp. 1963-1968, **2013**.
7. M. V. Korobov, D. S. Volkov, N. V. Avramenko, L. A. Belyaeva, P.I. Semenyuk and M. A. Proskurnin. Improving the dispersity of detonation nanodiamond: differential scanning calorimetry as a new method of controlling the aggregation state of nanodiamond powders. *Nanoscale*, 5, pp. 1529-1536, **2013**.
8. L. A. Belyaeva and G.F. Schneider. Wettability of graphene. *Submitted*
9. L.A. Belyaeva, L.Jiang and G.F. Schneider. Liquids relax and unify strain in graphene*. Under revision.*