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E.V.Lychagin
Deputy Director of the Frank Laboratory
of Neutron Physics

Egor V. Lychagin — PhD (Physics and Mathematics)

Date and place of birth:
July 17, 1973, Dimitrovgrad, Ulianovsk Region, USSR.

Nationality: Russsia

Education:

- 1991–1996 Department of Experimental and Theoretical Physics of the Moscow Engineering Physics Institute (MEPhI)
- 1997–2000 postgraduate studies at JINR UC
- 2008 PhD (Physics and Mathematics) ("Experimental study of inelastic scattering of ultracold neutrons (UCN) with a small energy transfer ($\sim 1 \cdot 10^{-7}$ eV) in the interaction with solid surfaces in a gravitational spectrometer")

Professional career:

- 1996–2000 Probationer, Nuclear Physics Department, Frank Laboratory of Neutron Physics (FLNP), JINR
- 2000–2005 Junior Researcher, Nuclear Physics Department, Frank Laboratory of Neutron Physics (FLNP), JINR
- 2005–2007 Researcher, Nuclear Physics Department, Frank Laboratory of Neutron Physics (FLNP), JINR
- 2007–2013 Head of Sector, Nuclear Physics Department, Frank Laboratory of Neutron Physics (FLNP), JINR
- Since 2013 Deputy director, Frank Laboratory of Neutron Physics (FLNP), JINR

Administrative activities:

- 2002–2007 – assistant to ISTC project manager (Project #2286 "Direct measurements of the n-n scattering cross section at YAGUAR pulsed reactor"
- Since 2013 Member of the Editorial Board of PEPAN journal
- Since 2013 Member of Executing Committee of GRANIT collaboration
- Member ofAdvisory Committee on Sources of Cold and Ultracold neutrons at Petersburg Nuclear Physics Institute (**PNPI**), Gatchina, Russia

Organization of International conferences:

- 2005 – Scientific secretary of international meeting "The Experiments in Giant Pulses of Thermal Neutrons from Burst Reactors and Beam-Stops of Large Accelerators"
- Since 2012 Scientific secretary of the annual International Seminar on Interaction of Neutrons with Nuclei (ISINN).

Research interests:

Fundamental physics with slow neutrons; Instrumentation and methods for slow neutrons

Publications, lectures:

Co-author of more than 30 papers publications in refereed journals, about 100 conference presentations, seminars, colloquiums and preprints; course "Physics of ultracold neutrons" at Physical Faculty of Moscow State University; course "Interaction of neutrons and gamma-rays with nuclei" at State University "Dubna".

Prizes, awards:

JINR Second Prize: "Observation and study of small upscattering of ultracold neutrons" (2006); JINR Second Prize: "Study of coherent scattering of slow neutrons by nanoparticles, and the creation of neutron bottle for cold neutrons" (2009)

Grants, federal contracts:

Since 2001 Russian Foundation for Basic Research, 6 grants

Last 5-years publication:

1. V.V. Nesvizhevsky, A.Yu. Voronin, A. Lambrecht, S. Reynaud, E.V. Lychagin, A.Yu. Muzychka, G.V. Nekhaev, A.V. Strelkov, "The method of UCN "small heating" measurement in the big gravitational spectrometer (BGS) and studies of this effect on Fomblin oil Y-HVAC 18/8" // Review of Scientific Instruments, **89** (2), (2018) 023501
2. V. V. Nesvizhevsky, M. Dubois, Ph. Gutfreund, E. V. Lychagin, A. Yu. Nezvanov, and K. N. Zhernenkov, " Effect of nanodiamond fluorination on the efficiency of quasispecular reflection of cold neutrons", Phys. Rev. A **97**, 023629 – Published 21 February 2018
3. V. V. Nesvizhevsky, M. Dubois, Ph. Gutfreund, E. V. Lychagin, A. Yu. Nezvanov, and K. N. Zhernenkov, " Effect of nanodiamond fluorination on the efficiency of quasispecular reflection of cold neutrons" // Phys. Rev. A 97, 023629 – Published 21 February 2018
4. Bosak, A. Dideikin, M. Dubois, O. Ivankov, E. Lychagin, A. Muzychka, G. Nekhaev, V. Nesvizhevsky, A. Nezvanov, R. Schweins, A Strelkov, A Vul, K Zhernenkov «Fluorination of Diamond Nanoparticles in Slow Neutron Reflectors Does Not Destroy Their Crystalline Cores and Clustering While Decreasing Neutron Losses » // *Materials* **2020**, *13*(15), 3337; https://doi.org/10.3390/ma13153337
5. Stefan Döge , Jürgen Hingerl , Egor V. Lychagin ,and Christoph Morkel "Scattering of ultracold neutrons from rough surfaces of metal foils", PHYSICAL REVIEW C 102, 064607 (2020) DOI: 10.1103/PhysRevC.102.064607
6. Aleksander Aleksenskii, Markus Bleuel, Alexei Bosak, Alexandra Chumakova, Artur Dideikin, Marc Dubois, Ekaterina Korobkina, Egor Lychagin, Alexei Muzychka, Grigory Nekhaev, Valery Nesvizhevsky, , Alexander Nezvanov , Ralf Schweins, Alexander Shvidchenko, Alexander Strelkov, Kylyshbek Turlybekuly, Alexander Vul' and Kirill Zhernenkov "Clustering of Diamond Nanoparticles, Fluorination and Efficiency of Slow Neutron Reflectors" // Nanomaterials **2021**, 11, 1945. https://doi.org/10.3390/nano11081945
7. Aleksander Aleksenskii, Markus Bleuel, Alexei Bosak, Alexandra Chumakova, Artur Dideikin, Marc Dubois, Ekaterina Korobkina, Egor Lychagin, Alexei Muzychka, Grigory Nekhaev, Valery Nesvizhevsky, Alexander Nezvanov, Ralf Schweins, Alexander Shvidchenko, Alexander Strelkov, Kylyshbek Turlybekuly, Alexander Vul', Kirill Zhernenkov "Effect of Particle Sizes on the Efficiency of Fluorinated Nanodiamond Neutron Reflectors" // Nanomaterials **2021**, 11, 3067 https://www.mdpi.com/2079-4991/11/11/3067
8. C. Hramco, K. Turlybekuly, S.B. Borzakov, N.A. Gundorin, E.V. Lychagin, G.V.Nehaev, A.Y. Muzychka, A.V. Strelkov, E. Teymurov, Experimental setup for elemental analysis using prompt

gamma rays at research reactor IBR-2, Nuclear Engineering and Technology **2022**, 54(8), 2999-3005 doi: https://doi.org/10.1016/j.net.2022.02.022.

9. S.M. Chernyavsky, M. Dubois, E. Korobkina, E.V. Lychagin, A.Yu. Muzychka, G.V. Nekhaev, V.V. Nesvizhevsky, A.Yu. Nezvanov, A.V. Strelkov, and K.N. Zhernenkov "Enhanced directional extraction of very cold neutrons using a diamond nanoparticle powder reflector" // Review of Scientific Instruments, **2022,** RSI22-AR-01966R