Aliya Baratova

Associate Professor of the International Department of Nuclear Physics, New Materials and Technologies

Contact information:
aa.baratova@yandex.kz

Scientific degree, title, scientific school:
Candidate of Physical and Mathematical Sciences, Ph.D.
E.A. Buketov Karaganda State University, Physical Faculty.

Scientific interests:
Computational Methods in Physics and Computer Simulation, Radiation Solid State Physics, Nanosystems and Nanotechnology, Fractal and Multifractal Analysis of Complex Structures, Self-Organization in Complex Systems.

Research Grants:
1.Junior researcher on the theme: "Development of methods for the preparation of biocompatible titanium with a nanocrystalline structure" (2006);
2.Researcher on the theme "Modeling and multifractal analysis of radiation, photo-, electro-and thermo-stimulated processes on the surface and in the bulk materials" (2006-2008);
3.Research Assistant on the theme: "The use of infrared spectroscopy technology for exploration, mining, concentration and recovery of ferrous, non-ferrous and rare metals" (2008);
4. Senior researcher on the theme: "Development of irradiation technology track membrane filters irradiation track membrane filters on the accelerator DC-60" (2010).
5. Senior Kesearcher on the theme: "Development of hydrogen energy and technology in the Republic of Kazakhstan" (2017-2018).
6. Leading Researcher on the theme: "Development of hydrogen energy and technology in the Republic of Kazakhstan" (2019-2020).

Professional experience:
2011- till present- L.N. Gumilyov Eurasian National University. Associate professor of International Chair of Nuclear Physics, New Materials and Technologies of L.N. Gumilyov Eurasian National University;
2007 – 2008 – L.N. Gumilyov Eurasian National University. Acting head of the research sector.

Awards:
Scholarship holder of state scientific grants for talented young scientists 2008-2010 , 2010-2012 years
Holder of the President of the Republic of Kazakhstan "Bolashak" schlolarship for 2014 year

Delivered courses: Theoretical Mechanics, Condensed Matter Physics, Nuclear Physics, Atomic Physics.

Publications (selected):

1. S.G. Karstina, K.S. Baktybekov, A.A. Baratova The certificate of state registration of intellectual property «Molecular clusters».-№ 234. - Astana, 2008;
2. K.S. Baktybekov, A.A. Baratova Influence of Photoexcited Molecules Quenching on the Structural Organization of the Molecular Matrix// Materials of 3 International conference on Computer Modeling and Simulation.- Mumbai, India, 2011.-P. 534-536;
3. K.S. Baktybekov, A.A Baratova Application of cellular automata to study structural transformations in solids with a nonlinear external impact // Synchrotron and Neutron Research Nanosystems: conference abstracts graduates of the Higher Courses of CIS for young scientists and students of advanced studies of nanosystems and materials. - Moscow-Dubna, 2012. - S. 33-41;
4 J. Martincik, M. Nikl, S. Ishizu, T. Cechak, K. Fukuda, T. Suyama, A. Beitlerova, A. Yoshikawa Concentration dependence of VUV-UV-visible luminescence of $Nd^{3+}$and Gd^{3+} in $LuLiF_4$// IEEE Transactions on Nuclear Science. – 2012, Volume 59, Issue 5.-P. 2188 - 2192. (Indexing by Thomson Reuters impact-factor 1,524).
5. K.S. Baktybekov, A.A. Baratova Modeling and Multifractal analysis of radiation defects evolution in solids//Physica Status Solidi C.-2015.-Vol. 12, №1-2. P. 15-19. (Indexing by Scopus impact-factor 0,5).
7. K.S. Baktybekov, A.A. Baratova Photoprocesses dynamics in nanostructured media// Abstracts of the VI International Youth School-Conference dedicated to the 75th anniversary of the NRNU MEPhI and the 95th anniversary of Academician N.G. Basov. -2017.-p. 23-24.
8. S.A. Nurkenov, A.A. Baratova, T.T. Kanalin Usage of ^{18}F (FDG) and ^{99m}Tc-based technetium radioisotopes in nuclear medicine//Proceedings of the XXI scientific student conference on natural, technical, social, humanitarian, economic, agricultural and veterinary sciences «Youth and Science». - 2018.-Semey.-p. 89-94.
9. S.A. Nurkenov, A.A. Baratova, K.Turikbayev Research of oncological diseases based on ^{18}F (FDG) and ^{99m}Tc// Bulletin of the Kazakh National

	Women's Pedagogical University. - 2019, No. 4 (80). - S. 53-60. 10. A.A. Baratova, K.S. Baktybekov Fractal Models of Energy Transfer Processes at Intermolecular Interaction// Abstracts of the VII International Youth Scientific Conference dedicated to the 100 anniversary of the Ural Federal University.-Yekaterinburg, 2020.- P. 138-139. 11. A.A. Baratova, K.S. Baktybekov Application of the fractal model in the analysis of energy transfer processes during intermolecular interactions // Collection of articles of the VII International Youth Scientific Conference “Physics. Technologies. Innovations, Ekaterinburg, 2020, pp. 36-45 (RISC). 12. A.A. Baratova, K.S. Baktybekov Fractal Models of Energy Transfer Processes at Intermolecular Interaction//American Institute of Physics Conference Proceedings. - 2021- **in press.**