  

**FLEROV LABORATORY OF NUCLEAR REACTIONS AT THE JOINT INSTITUTE FOR NUCLEAR RESEARCH**

**INSTITUTE OF RADIATION PROBLEMS, AZERBAIJAN NATIONAL ACADEMY OF SCIENCES**

**CIRRICULUM VITAE and PUBLICATION LIST**

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| **Matlab N. Mirzayev**  Address: Flerov Laboratory of Nuclear Reactions at the Joint Institute for Nuclear Research, DUBNA, MOSCOW distr., 141980, RUSSIA  Email: **matlab@jinr.ru |** Telephone: +79197683236 | D:\Matlab Mirzayev\Senedler ve Pasportlarim\sekil 3x4.jpg |

**PERSONAL INFORMATION**

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| **Name** | **MATLAB** |
| **Surname** | **Mirzayev** |
| **Address** | Flerov Laboratory of Nuclear Reactions at the Joint Institute for Nuclear Research, DUBNA, MOSCOW distr., 141980, RUSSIA |
| **e-mails** | [matlab@jinr.ru](mailto:matlab@jinr.ru) |
| matlabmirzayev@gmail.com matlab\_mirzayev@yahoo.com |
| **Tel** | +7 496 216 42 11 |
| **Mobile Phone** | +7 919 768 32 36 |
| **Date of birth** | 13.07.1983 |
| **Bio link:** | <https://www.scopus.com/authid/detail.uri?authorId=57201685593> <https://www.mendeley.com/profiles/matlab-mirzayev/>  <https://www.researchgate.net/profile/Matlab_Mirzayev> <https://scholar.google.com/citations?user=e3UPPTQAAAAJ&hl=en>  <https://orcid.org/0000-0002-0847-5452> |
| **Skype address** | mat-lab1983 |

**PERSONAL STATEMENT**

My primary research focuses on the experimental nuclear physics such as the investigation of radiation effects and defects and positron annihilation lifetime spectroscopy in solids under different types of radiation conditions. I am particularly interested in understanding behaviors of the substances that are prominent materials for radiation shielding against gamma, neutron, electron and ion irradiations. As an associate professor at Flerov Laboratory of Nuclear Reactions at the Joint Institute for Nuclear Research, I have gained precious experience in the nuclear topics such as shielding materials for nuclear applications, irradiation damage and analysis and studies of ion—radiation stability of microstructure, elemental and phase compositions. The scientific field of my researches connected with structure and phase state investigation of promising nanocomposite materials for nuclear applications. Pure boron compounds and boron-tungsten based composite materials were used in the experimental process that had been irradiated by alfa, neutrons, ions, and electron and flows of high-energy charged particles. My research area mainly focuses boron and tungsten alloys that are prominent materials due to their high melting point, low vapour pressure, very low sputtering erosion yields and high thermal conductivity for armour materials of plasma facing components. On the other hand, its limitations are associated with handling at low temperatures, plasma compatibility including neutron irradiation and radiological issues.

**EDUCATION**

**09/2019**

**Supreme Attestation Commission under the President of the Republic of Azerbaijan | Baku, Azerbaijan**

By the decision dated October 7, 2019 (Protocol 19-K) confers on Matlab N. Mirzayev the academic title of **Associate Professor in the Specialty of Radiation Materials Science**

**01/2010 – 01/2014**

**Institute of Radiation Problems, Azerbaijan National Academy of Sciences| Baku, АZ1143 Azerbaijan**

**Ph.D:** Radiation material science, application and technology

**Thesis Title:** INFLUENCE OF INTERNAL AND EXTERNAL IRRADIATION ON ELECTROPHYSICAL PROPERTIES OF URANYL-SILICATE COMPOUNDS

**Degree:** Ph.D on Physics, Senior Scientist

**09/2005 – 07/2007**

**Baku State University, Faculty of Physics | Baku, АZ1143 Azerbaijan**

**MSc:** Division of Physics Education, Master Program, Faculty Physics of Solid State

**09/2001 – 07/2005**

**Baku State University, Faculty of Physics | Baku, АZ1143 Azerbaijan**

**BSc:** Division of Physics Education, Bachelor Program, Faculty Physics of Solid State

**EMPLOYMENT HISTORY**

**01/09/2017 – Present**

**Associate Professor | Flerov Laboratory of Nuclear Reactions at the Joint Institute for Nuclear Research.**

**Scientific and Experimental Physical Department**: Ion-implantation nanotechnology and radiation materials science

**Head of Department:** Vladimir Alexeevich SKURATOV, D.Sc.

**Dubna, Russia**

**01/09/2017 – 18/12/2014**

**Senior Scientist |** **National Nuclear Research Center, AZ1073, Inshaatchilar pr. 4, Baku, Azerbaijan**

**Division:** Department of Nanotechnology and Radiation Material Science

**Position:** Ph.D on Physics, Senior Scientist

In this period, I carried out studies on the following topics:

Determination of microstructure, elemental and phase states of the boron matrix composites under the radiation irradiation conditions. As shown in the below techniques:

* Scanning Electron Microscopy (SEM)
* X-Ray Diffraction (XRD)
* Raman Spectroscopy
* Small-Angle Neutron Scattering (SANS)
* Differential Scanning Calorimetry (DSC)
* Thermogravimetric analysis (TGA)

**06/05/2007 – 23/12/2014**

**Research Fellow | Institute of Radiation Problems, Azerbaijan National Academy of Sciences| Baku, АZ1143 Azerbaijan**

**Title of department:** Physics of radionuclide-containing materials.

**Position:** Researcher

**Supervisor:** Ravan N. Mehdiyeva

I studied the topics as shown below during this period:

* Acquaintance with gamma irradiation technique and irradiation of composites by high-energy electrons.
* Electrophysical properties of boron composites irradiated by gamma and ions.
* Analysis and studies of ion—radiation stability of microstructure, elemental and phase compositions.
* Investigation of surface modifications and phase transformation of composite materials under the high gamma irradiation conditions.

**ADDITIONAL SKILLS / RESEARCH INTEREST**

I have been working as a research assistant at the Flerov Laboratory of Nuclear Reactions at the Joint Institute for Nuclear Research since 2018. In the meantime, I also have some responsibilities to give lectures at the following laboratories.

* + - Radiation measurement techniques
    - Positron annihilation lifetime spectroscopy XRF Analyses
    - XRD Analyses
    - SEM Analyses
    - Energy-dispersive X-ray spectroscopy (EDS, EDX)
    - The investigation on behaviour of soil samples against radiation
    - Selection of tracer injection and sampling procedures
    - Raman Spectroscopy
    - Small Angle Neutron Scattering (SANS)
    - Differential Scanning Calorimetry (DSC) Thermal Analysis.
    - Thermogravimetric Analysis (TGA)