



**INSTITUTE OF PHYSICS, MINISTRY OF SCIENCE AND EDUCATION
REPUBLIC OF AZERBAIJAN
FRANK LABORATORY FOR NUCLEAR RESEARCH AT THE JOINT INSTITUTE
FOR NUCLEAR RESEARCH
CIRRICULUM VITAE and PUBLICATION LIST**

Asif G. Asadov

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PERSONAL INFORMATION

Name	Asif
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Date of birth	19.07.1996

PERSONAL STATEMENT

In my capacity as a researcher at the prestigious Frank Laboratory for Neutron Research in Russia Dubna, my work is centered on the investigation of rare earth titanates. My research encompasses Neutron Diffraction, X-ray Diffraction (XRD), Raman spectroscopy, and Density Functional Theory (DFT) calculations. I focus on the structural properties and phase transitions of these materials under both high-pressure and ambient conditions. I am deeply intrigued by the intricate structural behaviors exhibited by rare earth titanates. My research seeks to unveil the nuances of their phase transitions and structural properties. Whether analyzing their responses to extreme pressures or predicting their structural behaviors under varying conditions, my objective is to expand our understanding of these materials. Collaborating with a diverse team of researchers at the Frank Laboratory has provided an intellectually stimulating environment, fostering innovation and the pursuit of knowledge. My research, disseminated through international conferences and respected scientific journals, aims to contribute to the field of materials science and inspire future scientific

endeavors. My dedication to scientific inquiry and a passion for uncovering the mysteries of rare earth titanates drive my ongoing research.

EDUCATION

01/2020 – present

Institute of Physics, Azerbaijan National Academy of Sciences| Baku, AZ1143 Azerbaijan

Ph.D student: Condensed matter physics, Crstallography

Thesis Title: The effect of high pressure on $\text{Re}_2\text{Ti}_2\text{O}_7$ (Re= La, Nd, Pr) layered-perovskites, structural and magnetic properties.

09/2017 – 07/2019

Baku State Universty| Baku, AZ1148 Azerbaijan

MSc: Division of Solid state physics, Master Program, Faculty of Physics

Thesis Title: NUCLEONS FORM-FACTORS IN ISOSPIN MEDIUM IN THE HOLOGRAPHIC QCD.

09/2013 – 07/2017

Baku State Universty| Baku, AZ1148 Azerbaijan

BSc: Division of Physics teacher, Bachelor Program, Faculty of Physics

Thesis Title: Effective pore size for solar panels in porous silicon on CdS layers.

EMPLOYMENT HISTORY

20/12/2019 – 05/11/2020

Engineer| Institute of Physics, Azerbaijan National Academy of Sciences| Baku, AZ1143 Azerbaijan.

05/11/2020 – Present

Fellow researcher| Institute of Physics, Azerbaijan National Academy of Sciences| Baku, AZ1143 Azerbaijan.

Title of department: Crstallography.

Position: Junior Researcher.

15/05/2021 – Present

Researcher | Joint Institute for Nuclear research, Dubna, Russia.

Title of department: Frank Laboratory for Nuclear Research.

Position: Junior Researcher.

ADDITIONAL SKILLS / RESEARCH INTEREST

I have been working as a research assistant at the Frank Laboratory for Nuclear Research at the Joint Institute for Nuclear Research during this period I learn the technical skills for our facility.

- Loading sample to Diamond Anvill Cell for high pressure research
- Work with X-ray diffraction deviece (Xeuss 3.0, France).
- Work with Raman spectroscopy deviece (Comfocal Duo)

COMPUTER SKILLS

- Origin Lab (Graphing for Science and Engineering)

- Python (Data analysis)
- CASTEP (Density Functional Theory calculations)
- Forcite (Density Functional Theory calculations)
- Dmol3 (Density Functional Theory calculations)
- OpenMPI (Parallel programming)
- FullProff (XRD - analysis)
- QualX (XRD - indexation)
- Diamond 3.0 (Crystal structure visualization)

Participating conferences

- The XXVI International Scientific Conference of Young Scientists and Specialists (AYSS-2022, Dubna Russia)
- 57th meeting of the PAC for Condensed Matter Physics (2023, Dubna, Russia)
- Конференция по использованию рассеяния нейтронов в исследовании конденсированных сред РНИКС–2023. (Ekaterinburg, Russia)
- «Нейтронные исследования конденсированного состояния» - НИКОНС-2023. (2023, Sankt –Petersbourg, Russia)
- The XV-th International School-Conference "The Actual Problems of Microworld Physics" (2023, Minsk, Belarus)

Publications last 1 year

- **Modeling and X-ray Analysis of Defect Nanoclusters Formation in B4C under Ion Irradiation.** [10.3390/nano12152644](https://doi.org/10.3390/nano12152644)
- **A structural phase transition in La2Ti2O7 at high pressure** [10.1016/j.physb.2023.414753](https://doi.org/10.1016/j.physb.2023.414753)
- **Leptothrix biofilms and the formation of oxygen and hydrogen molecules in structure.** [10.1142/S0217984923502603](https://doi.org/10.1142/S0217984923502603)
- **Effect of Si and Nb additions on carbonitride coatings under proton irradiation: A comprehensive analysis of structural, mechanical, corrosion, and neutron activation properties.** [10.1016/j.nme.2023.101457](https://doi.org/10.1016/j.nme.2023.101457)

In Progress.

1. The effects of high pressure on the crystal structure and vibration spectra of layered perovskite-like Nd2Ti2O7
2. *Ab initio* DFT calculations and experimental research of Pr2Ti2O7 at elevated pressures.
3. The origin of Phase transition in layered- perovskite like materials.