Mina Hajizadeh

Doctoral Candidate and Junior Research Fellow

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Birth: 1993
Languages: Persian & Azerbaijani (native languages), English & Turkish (fluent), French (Basic)

Employment

2022–present	Junior Research Fellow in Physics University of Tartu, Physicum
2021–present	Research and Teaching Assistant University of Tartu, Physicum
2019-2021	Research Laboratory Assistant in Spectroscopy University of Tehran, Tehran, Iran
2017	Teaching Assistant in Biological Thermodynamics University of Tehran, Tehran, Iran
2015–2016	Apprenticeship in Biochemistry Tests Hospital Laboratory, Rasht, Iran

Education

2021–present	PhD in Physics, University of Tartu, Estonia Dissertation: *Structure and dynamics of photoactive proteins studied by (in situ-) neutron scattering methods.* Advisors: Prof. Jörg Pieper (University of Tartu), Dr. Maksym Golub (University of Tartu)
2016–2019	M.Sc. in Biophysics, University of Tehran, Iran Thesis: *The effects of heat, pH, and Tannic acid on beta-casein protein structure, hydrophobicity and foaming* Advisors: Prof. Ali A. Moosavi-Movahedi (University of Tehran)
2011–2015	B.Sc. in Cellular and Molecular Biology, Azarbaijan Shahid Madani University, Tabriz, Iran

Research Interests

Mina is currently working towards a Ph.D. in Experimental Physics at the Department of Physics, University of Tartu. Her fields of research interest include neutron scattering, protein structure and dynamics, MD simulation, and protein extraction and purification.
My ongoing research includes the following topics:

- Finding protein structure via Small Angle Neutron Scattering
- Investigating proteins dynamic utilizing Quasi Elastic Neutron Scattering
- Flowing protein structural change via Time-Resolved Neutron scattering

Skills

- Designing Experiments
- Neutron scattering data analysis (ATSAS, SASview, PEPSI)
- X-ray scattering
- X-ray crystallography
- Protein visualization software: PyMOL, Coot, VMD, and UCSF Chimera
- Protein expression and purification (including cloning of a gene in a bacterial host, purification by affinity chromatography, and verification by SDS-PAGE analysis), PCR, Agarose gel electrophoresis, Stock maintenance, and storage of bacteria
- Different Chromatography Techniques: Column Chromatography, Affinity Chromatography, Ion-exchange chromatography
- Cell culture
- Biophysical techniques such as ITC, CD, and UV or fluorescence spectroscopy
- Python programming
- HTML, CSS

Publications

1 Hajizadeh, M., Golub, M., Moldenhauer, M., Lohstroh, W., Friedrich, T., Pieper, J., 2024. The Dynamical Properties of Three Different Variants of the Orange Carotenoid Protein: A Quasielastic Neutron Scattering Study. Crystals, 14(4), 361.

2 Hajizadeh, M., Golub, M., Moldenhauer, M., Matsarskaia, O., Martel, A., Porcar, L., Maksimov, E., Friedrich, T., Pieper, J., 2024. Solution structures of two different FRP-OCP complexes as revealed by SEC-SANS. Int. J. Mol. Sci. 2024, 25(5), 2781. (This article belongs to the Special Issue Advanced Research in Prediction of Protein Structure and Function).

3 Hajizadeh, M., Moosavi-Movahedi, Z., Sheibani, N. and Moosavi-Movahedi, A.A., 2021. An outlook on suicide enzyme inhibition and drug design. Journal of the Iranian Chemical Society, pp.1-18. doi: 10.1007/s13738-021-02416-4.

Ongoing

1 Cryoprotectant Enhanced Vibrational Dynamics in Water-Soluble Chlorophyll Protein (WSCP): Unveiling Molecular Adaptations through Inelastic and Quasi-elastic Neutron Scattering with Glycerol (submitted).

2 Deep freezing effect on serum albumin protein. (Final stages).

3 Time-Resolved SANS study of the thermal back conversion of Orange Carotenoid Protein from its active to ground state (Ongoing).

Academic References

Jörg Pieper, PhD
Professor in Biophysics
University of Tartu
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Prof. Jörg Pieper has been my PhD advisor. He is also a co-author.

Maksym Golub, PhD
Research Fellow
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Dr. Maksym Golub has been my PhD co-advisor. He is also a co-author.