PERSONAL INFORMATION

Hafez Taghipour Aslani

Extreme Light Infrastructure - Nuclear Physics, IFIN-HH, 30 Reactorului Street, 077125 Magurele, Romania

Hafez.aslani@eli-np.ro

Sex M |

Nuclear physicist with experience in the design of applied radiation systems and experimental gamma-ray spectroscopy. Designed a portable gamma irradiation system for food irradiation applications for University of Sistan and Baluchestan, Zahedan, Iran. Principal investigator of an INSF-funded project on differential cross-section measurements of light particle–induced gamma-ray emission for isotopic analysis. Currently working at IFIN-HH – ELI RO Subunit, Gamma Driven Department, with responsibility for the ELIGANT-TN detector array and support of gamma-driven experimental activities.

WORK EXPERIENCE

Sept 2020 - Sept 2023

PHD Researcher

Nuclear Science and Technology Research Institute(NSTRI)

Tehran, Iran.

- Ion Beam Analysis

Jun 2024 - Present

Physicist

IFIN-HH - ELI RO Subunit, Gamma Driven Experiments Department

Bucharest, Romania

- Nuclear resonance flurescence
- Monte Carlo Simulation
- Photonuclear Reactions

EDUCATION AND TRAINING

Sept 2019 - Oct 2023
Doctor of Philosophy Nuclear Physics
University of Sistan and Baluchestan, Zahedan, Iran
- Nuclear Physics

Sept 2016 - Jun 2018
Master of Science Nuclear physics
University of Sistan and Baluchestan, Zahedan, Iran
- Nuclear Physics

Feb 2012 - Mar 2016
Bachelor of Science Physics
Damghan University, Damghan, Iran
- Nuclear Physics

PERSONAL SKILLS

Mother tongue(s): Persian

Other language(s)	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C2	C2	C2	C2	C2
	Replace with name of language certificate. Enter level if known.				
Replace with language	Enter level	Enter level	Enter level	Enter level	Enter level
	Replace with name of language certificate. Enter level if known.				

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2 Proficient user

Communication skills
- Good communication skills gained through my experience in working in multidisciplinary and multicultural teams

Job-related skills
- Ion Beam Analysis
- Experimental nuclear physics: Gamma spectroscopy using HPGe detectors; particle and neutron detectors
- Data acquisition and analysis

Digital competence	SELF-ASSESSMENT				
	Information processing	Communication	Content creation	Safety	Problem solving
	Proficient User	Proficient User	Proficient User	Proficient User	Proficient User

Levels: Basic user - Independent user - Proficient user

Replace with name of ICT-certificate(s)

Programming languages:

Other skills
- Python, C++, Geant4, ROOT, MCNP

Driving licence
A, B

ADDITIONAL INFORMATION

Publications
Presentations
Projects
Conferences
Seminars
Honours and awards
Memberships
References
Citations
Courses
Certifications

- **ELIGANT-TN — ELI Gamma above neutron threshold: The thermal neutron setup,** Nuclear Instruments and Methods in Physics Research Section A, April 2026, https://doi.org/10.1016/j.nima.2025.171229
- **Study of 3089 keV gamma-ray emission from the reaction of $^{12}C(d, p\gamma_{1\text{-}0})^{13}C$ for analytical applications,** Nuclear Inst. and Methods in Physics Research B, December 2024, https://doi.org/10.1016/j.nimb.2024.165549
- **Differential cross-section measurement for $^{10}B(p, \alpha\gamma_1)^7Be$, $^{10}B(p, p'\gamma_1)^{10}B$ and $^{11}B(p, p'\gamma_1)^{11}B$ reactions,** Nuclear Inst. and Methods in Physics Research B, November 2024, https://doi.org/10.1016/j.nimb.2024.165509
- **Differential cross section measurements of the $^{11}B(d, p\gamma_{1,2})^{12}B$ reactions for analytical applications,** Nuclear Inst. and Methods in Physics Research B, July 2023, https://doi.org/10.1016/j.nimb.2023.04.033
- **DIGE differential cross-section data for ^{6} Li and ^{19}F analysis,** Nuclear Inst. and Methods in Physics Research B, February 2023, https://doi.org/10.1016/j.nimb.2022.12.002
- **Characterization of LiF thin layer by nuclear reaction techniques,** Radiation Physics and Engineering, May 2022, http://dx.doi.org/10.22034/rpe.2022.336209.1066

Achievements

- I designed and simulated a portable, homogeneous gamma-irradiation system for educational and research purposes at University of Sistan and Baluchestan, developed specifically for date irradiation applications. The system was optimized for radiation protection, cost, weight, and dose uniformity, featuring a shielded irradiation chamber with rotating samples to ensure four-sided exposure. Simulation results demonstrated a maximum dose rate of 500 mGy/h with 8.9% dose homogeneity, while fully complying with radiation safety and transportation standards.

- I was awarded a competitive research grant from Iran's National Science Foundation (INSF) for the project "Differential Cross Section Measurement of Light Particle–Induced Gamma-Ray Emission of ^{6,7}Li and ^{10,11}B Targets for Isotopic Analysis." The validated experimental results were submitted to the Ion Beam Analysis Nuclear Data Library (IBANDL), developed by the

International Atomic Energy Agency (IAEA), contributing to the improvement of nuclear data libraries and enabling their use by international researchers in isotopic analysis.

- I have been actively involved in detector testing, performance validation, and commissioning of the ELIGANT-TN thermal neutron spectrometer, including a major international upgrade to enhance its capability for charged-particle–induced neutron measurements. This upgrade increases the number of embedded ^{3}He proportional counters to 74, raising neutron detection efficiency from ~38% to over 55% while preserving a flat efficiency response to minimize systematic uncertainties. As part of this effort, I participated in on-site detector testing at NCSR Demokritos (Athens, Greece) in November 2025 and am currently conducting detailed GEANT4 simulations to optimize detector geometry, evaluate efficiency, and quantify systematic effects related to neutron energy and angular distributions.

List of publications, works, articles/studies, patents

Publications

1. ELIGANT-TN — ELI Gamma above neutron threshold: The thermal neutron setup

   Nuclear Inst. and Methods in Physics Research, A 2026

   https://doi.org/10.1016/j.nima.2025.171229

2. Study of 3089 keV gamma-ray emission from the reaction of $^{12}C(d, p\gamma_{1\text{-}0})^{13}C$ for analytical applications

   Nuclear Inst. and Methods in Physics Research, B 2024

   https://doi.org/10.1016/j.nimb.2024.165549

3. Differential cross-section measurement for 10B(p, αγ1)7Be, 10B(p, p'γ1)10B and 11B(p, p'γ1) 11B reactions

   Nuclear Inst. and Methods in Physics Research, B 2024

   https://doi.org/10.1016/j.nimb.2024.165509

4. Differential cross section measurements of the $^{11}B(d, p\gamma_{1,2})^{12}B$ reactions for analytical applications

   Nuclear Inst. and Methods in Physics Research, B 2023

   https://doi.org/10.1016/j.nimb.2023.04.033

5. DIGE differential cross-section data for ^{6}Li and ^{19}F analysis

   Nuclear Inst. and Methods in Physics Research, B 2023

   https://doi.org/10.1016/j.nimb.2022.12.002

6. Characterization of LiF thin layer by nuclear reaction techniques Publisher: Radiation *Physics and Engineering May 2022*

   http://dx.doi.org/10.22034/rpe.2022.336209.1066

Conferences

Fabrication of suitable target for PIGE cross section measurement

25-26 February 2023 29th Iranian Nuclear Conference, Shahid Beheshti University

Determination of HPGe detector dead layer

25-26 February 2023 *29th Iranian Nuclear Conference, Shahid Beheshti University*

Differential cross sections measurement of $^{11}B(d,p\gamma\gamma_{1,2})$ ^{12}B reactions for analytical applications

14th European Conference on Accelerators in Applied Research and Technology (ECAART14) 17-23 July 2022 SIBIU, ROMANIA

Characterization of LiF thin layer by nuclear reaction techniques

1st International and 28th National Conference on Nuclear Science and Technology (ICNST22) March 2-4, 2022 in Iran.

Differential cross sections measurement of $^{7}Li(p,p\gamma_{1,0})^{7}Li$ reactions for analytical applications

Joint ICTP-IAEA Advanced Workshop on Future Trends in Multidisciplinary Ion Beam Analysis, t the Abdus Salam International Centre for Theoretical Physics (ICTP), in Trieste from 10 October 2022 to 14 October 2022.

Design and simulation of food irradiation system

National Conference on Economics, Commercialization and Processing of Dates December 2019,Iran,Zahedan

Design and simulation of mobile and homogeneous gamma irradiation system

Annual Physics Conference of Iran, Imam Khomeini International University,28-30 August,2018 August 2018

Grant

The PhD thesis titled "Differential Cross Section Measurement of Light Particle Induced Gamma-ray Emission of 6,7Li and 10,11B Targets for Isotopic Analysis" was granted by Iran's National Science Foundation (INSF).

ANNEX 1

MINIMAL STANDARDS APPLICABLE AT IFIN-HH
for being awarded the professional ranks of
First Stage Researcher (Research Scientist - CS) and
Recognised Researcher (3rd rank Research Scientist - CS III)

Approved in the meeting of IFIN-HH Scientific Council of 27.02.2025 (SC Decision No. 5/27.02.2025)

Minimal Standards (at IFIN-HH)

1) IFIN-HH shall establish threshold scores ($P_{threshold}$) according to the table below.

	First Stage Researcher (CS)	Recognised Researcher (CSIII)
$P_{threshold}$	0.50	1.50

2) During the evaluation of the candidate's scientific activity, the score P is determined in the following manner:

$P=P_1+P_2$, where

P_1: for articles where the candidate is an author, but not a first author or a corresponding author: $P_1 = \sum_i a_i / n_i^{ef}$

P_2 : for articles where the candidate is a first author or a corresponding author: $P_2 = \sum_i a_i$

a_i = is the absolute Article influence score of the scientific journal where article i was published, according to its year of publication as per http://www.eigenfactor.org/ for articles published until 2006 and Journal Citation Report (Web of Science) starting from 2007; if the publishing year cannot be not found in the database, the closest year shall be chosen.

n_i^{ef} = is the actual number of authors of item i and is determined as follows:

n_i	if $n_i \leq 5$
$(n_i + 5)/2$	if $5 < n_i \leq 15$
$(n_i + 15)/3$	if $15 < n_i \leq 75$
$(n_i + 45)/4$	if $n_i > 75$

where n_i is typically the number of authors of item i. In the case of HEPP (High Energy Particle Physics) publications with a large number of authors, if the article is based on an internal note of the collaboration and the candidate is a co-author of this internal note, then n_i^{ef} can be given by the number of authors in the internal note.

The capacity as first author or corresponding author shall be determined based on the mentions in the article. Articles where authors are indicated in the alphabetical order of their name and the candidate is a first author exclusively due to their name and the alphabetical order shall not be taken into account. In the case of HEPP publications with a large number of authors, if the article is based on an internal note whose approval for sending to publication was upheld by the author, then the author is considered first author.

Minimal Standards Self-Assessment Form:

Category of Articles	Position in the List of Papers	Score	Calculation Details
Articles in ISI Thomson Reuters ranked journals and in ISI Proceedings indexed volumes for which the candidate is not a first author or a corresponding author	i	a_i/n_i^{ef}	Journal of Fluorescence, 2011; 21(4):1421-9, AIS=0.506, no. of authors:6, ef no:5.33
	1th	0.0222	NIM A, Volume 1084, April 2026, 171229, AIS=0.326, no. of authors:29, ef no:14.67
	2th	0.1575	NIM B, Volume 552, December 2024, 165549, AIS=0.315, no. of authors:2, ef no:2
Articles in ISI Thomson Reuters ranked journals and in ISI Proceedings indexed volumes for which the candidate is a first author or a corresponding author	..	a_i	
	3th	0.315	NIM B, Volume 556, November 2024, 165509, AIS=0.315, no. of authors:4
	4th	0.315	NIM B Volume 540, July 2023, Pages 141-147, AIS=0.315, no. of authors:4
	5th	0.315	NIM B, Volume 557, December 2023, 165549, AIS=0.315, no. of authors:4
TOTAL		1.175	

Date

16.01.2026

Signature

Hafez Taghipour Aslani

Scientific Prestige and Managerial Skills

This document lists the scientific prestige and managerial skills of the candidate relevant to the evaluation criteria.

- **Director of a funded research project**

  Principal Investigator of *"Differential Cross Section Measurement of Light Particle Induced Gamma-ray Emission of $^{6,7}Li$ and $^{10,11}B$ Targets for Isotopic Analysis"*, funded by Iran's National Science Foundation (INSF). Responsibilities included project conception, experimental design, coordination, data analysis, and reporting.

- **Author / co-author in conceiving and proposing an experiment or method**

  - co-spokesperson of Commissioning of upgrade of the ELIGANT-TN spectrometer for GANT studies at ELI-NP.
  - co-spokesperson of *"Measurement of $^{53}Mn(n,\gamma)$ reaction cross-section using surrogate method at 9 MeV Tandem, IFIN-HH"*.

- **Research positions abroad / international experience**

  Researcher at **IFIN-HH – ELI RO Subunit, Gamma Driven Department**, participating in international research infrastructure and gamma-driven experimental campaigns.

- **Responsibility in international experiments**

  Responsible for the **ELIGANT-TN detector array**, including operation, calibration, optimization, and experimental support.

- **Invited talks / Oral presentations at conferences**

  - *Differential Cross-sections Measurement for $^{12}C(d,p0)^{13}C$ reaction*

    July 2025, 12th Congress of the Balkan Physical Society (BPU 12), Bucharest, Romania

  - *Differential cross sections measurement of $^{10}B(p,p\gamma1,0)^{10}B$ and $^{11}B(p,p\gamma1\text{-}0)^{11}B$ reactions for analytical applications*,

    11–14 July 2023, 21st International Balkan Workshop on Applied Physics

  - *Fabrication of suitable target for PIGE cross section measurement*,

    February 2023, 29th Iranian Nuclear Conference, Shahid Beheshti University

  - *Determination of HPGe detector dead layer*

    February 2023, 29th Iranian Nuclear Conference, Shahid Beheshti University

  - *Differential cross sections measurement of $^{7}Li(p,p\gamma1,0)^{7}Li$ reactions for analytical applications*
  - October 2022, Joint ICTP-IAEA Advanced Workshop, Abdus Salam International Centre for Theoretical Physics (ICTP), Trieste
  - *Differential cross sections measurement of $^{11}B(d,p\gamma\gamma1,2)^{12}B$ reactions for analytical applications*,

    July 2022, 14th European Conference on Accelerators in Applied Research and Technology (ECAART14), Sibiu, Romania

  - *Characterization of LiF thin layer by nuclear reaction techniques*

March 2022, 1st International and 28th National Conference on Nuclear Science and Technology (ICNST22), Iran

- *Design and simulation of food irradiation system*

  December 2019, National Conference on Economics, Commercialization & Processing of Dates, Zahedan, Iran

- *Design and simulation of mobile and homogeneous gamma irradiation system*

  August 2018, Annual Physics Conference of Iran, Imam Khomeini International University, Iran