

Name: Mehdi Afshari Abolkarlou

Email: mafshari_9@yahoo.com



Education:

BSc.

University: Vali-e-Asr University of Rafsanjan (sep 2007- Jul 2011)

Major: Atomic Physics

Msc.

University: Shahrood University of Technology (sep 2011- Feb 2014)

Major: Nanotechnology (Nanophysics)

Thesis: Growth and Study of Fe/Cu/Fe Nanostructures

Supervisors: Prof. Morteza Izadifard, Prof. Mohammad Ebrahim Ghazi

PhD

University: Sharif University of Technology

Major: Nanotechnology

Thesis:

Supervisors:

Research Experiences:

- **Master's Thesis:** Growth and Study of Fe/Cu/Fe Nanostructures, Shahrood University of Technology (2012-2014)
- **Military service exemption project:** synthesis and characterization of metal hydrides based on LaNi₅, Malek-e- Ashtar University, Tehran (2014-2015)
- **Independent research:** growth and characterization of metal oxide semiconducting materials, (Zno NWs, ZnS NPs), University of Shahreza (2017-2019)

Publications:

- Mehraban Jouya, Fahime Taromian, **Mehdi Afshari Abolkarlou**, "Growth of Zn thin films based on electric field by thermal evaporation method and effect of oxidation time on physical properties of ZnO nanorods," Journal of Materials Science; Materials in Electronics 31, (2020): 8680–8689, DOI: <https://doi.org/10.1007/s10854-020-03403-w>
- Mehraban Jouya, Fahime Taromian, **Mehdi Afshari Abolkarlou**, " Effect of an applied electric field during the oxidation process of zinc thin films on growth and properties of ZnO nanorods," Applied Physics A 126 (697), (2020), DOI: <https://doi.org/10.1007/s00339-020-03884-w>
- **M. Afshari Abolkarlou**, M. H. Amerioun, "Experimental study of structural and magnetic properties of LaNi_5 and $\text{MmNi}_{4.7}\text{Al}_{0.3}$ hydrogen storage alloys," Journal of superconductivity and novel magnetism 32, 1853-1857 (2019), DOI: <https://doi.org/10.1007/s10948-019-5122-4>
- **M. Afshari**, "structural and magnetic properties of LaNi_5 and $\text{LaNi}_{3.94}\text{Al}_{1.06}$, before and after hydrogenation," Journal of Superconductivity and Novel Magnetism 30, 2255-2259 (2017), DOI: <https://doi.org/10.1007/s10948-017-4045-1>
- **M. Afshari**, M. E. Ghazi, M. Izadifard, "Structural and magnetic properties of Fe/Cu/Fe trilayers," The African Review of Physics (2015) [10:0004](#).
- **M. Afshari**, H. Targholizadeh, R. Azimirad, "Effect of hydrogenation on structural and magnetic properties of LaNi_5 and $\text{LaNi}_{3.94}\text{Al}_{1.06}$ alloys," The 3rd international congress on nanoscience & nanotechnology (ICNT 2015), 2-3 Jul- Istanbul- Turkey.
- H. Targholizadeh, R. Azimirad, **M. Afshari**, "effect of Al atoms substitution for Ni on magnetic properties of LaNi_5 compounds," National Conference of Nanostructures and Graphene, 20-21 May 2015, Tehran, Iran.
- **M. Afshari**, M. E. Ghazi, M. Izadifard, "Law of approach to saturation and Fe/Cu/Fe nanolayers magnetic anisotropy," National Conference of Nanostructures and Graphene, 20-21 May 2015, Tehran, Iran.
- **M. Afshari**, M. E. Ghazi, M. Izadifard, "Investigate of Structural and magnetic properties of Fe/Cu/Fe multilayer nanostructures," Iran Vacuum National Conference, 5-6 Feb 2014, Ahvaz, Iran.
- **M. Afshari**, M. E. Ghazi, M. Izadifard, "Effect of Fe layer thickness on Fe/Cu/Fe nanostructures magneto-resistance," Iran Vacuum National Conference, 5-6 Feb 2014, Ahvaz, Iran.
- **M. Afshari**, M. E. Ghazi, M. Izadifard, "investigation of Fe/Cu/Fe nanostructures magneto-resistance," 3th Congress of Nano-Sciences Defensive Applications, 27-28 Nov 2013, Tehran, Iran.

Skills:

- **Deposition methods of nanostructures:**
Thermal evaporation, Sol-Gel, Spray pyrolysis, Electrodeposition, Deep coating, Spin coating, Chemical Vapor Deposition
- **Characterization and data analysis:**
X-Ray Diffraction, X-Ray Fluorescence, Energy Dispersive X-Ray Spectroscopy, Raman Spectroscopy, UV-visible, Hall Effect, Magnetoresistance, Vibrating Sample Magnetometer, Approach to Saturation Magnetization and Magnetic Anisotropy.
- **Computer skills:**
ICDL (advanced), Fortran, Sigma plot, Origin, Xpowder, X'pert High Score, ImageJ.

Teaching Assistant:

- Fundamental physics (mechanics, electricity and magnetism, thermodynamics), Technical Faculty of Kharazmi, Shahreza (2015-2020)
- Electromagnetism I, Technical Faculty of Kharazmi, Shahreza (2018-2019)
- Laboratory of fundamental physics (mechanics, electricity and magnetism, thermodynamics), University of Shahreza (2015-2021)
- Quantum mechanics, Shahrood University of Technology (2013-2014)
- crystal growth laboratory, Shahrood University of Technology (2012-2014)

Language Ability:

- Turkish (mother tongue)
- Persian (native)
- English (fluent)

Courses & Certificates:

- **Online International Workshop on X-ray Diffraction Analysis**, Department of Physics, Siddaganga Institute of Technology, India (16-20 Oct, 2020).
- **Health, Safety and Environment**, University of Shahreza, Iran (May 2016).
- **Fundamentals of Scanning Electron Microscopy**, Semnan Science and Technology Park, Iran (Feb 2013).
- **Initial Acquaintance to Nanotechnology**, Faculty of Sciences, Vali-e-Asr University of Rafsanjan, Iran (April 2010).

References:

1. **Prof. Dr. Mohammad Ebrahim Ghazi**, Department of Physics, Shahrood University of Technology, Shahrood, Iran. (mghazi@shahroodut.ac.ir)
2. **Prof. Dr. Hossein Eshghi**, Department of Physics, Shahrood University of Technology, Shahrood, Iran. (h_eshghi@shahroodut.ac.ir)
3. **Prof. Dr. Morteza Izadifard**, Department of Physics, Shahrood University of Technology, Shahrood, Iran (mizadifard@shahroodut.ac.ir)