

Ali Rafiei

Junior Researcher

Education

Research Assistant (Oct 2022-Present): Nano-physics and Spintronics Lab,
Department of physics, Shahid Beheshti University

M.Sc. Student (2019-2022): Solid-State Physics, Nano-physics and Spintronics Lab,
Department of physics, Shahid Beheshti University

Thesis: Fabrication and characterization of thin films via physical and chemical methods
for memory devices.

Supervisor: Prof. Majid Mohseni

Grade: 3.538/4

Ranking: 2ed between 13 students

B.Sc. Student(2015-2019): Solid-State Physics, Department of Science, Hakim Sabzevari University

Ranking: 1st between 25 students

Scientific Experiences

Synthesize methods: Chemical Vapor Deposition (CVD), (AC/DC) Magnetron Sputtering,
Photolithography

CVD Growth of few-layers two dimensional Graphene and transition metal dichalcogenides (TMDCs) such as WS_2 , MoS_2 and transferring them to the desired substrates

Growth of Ni-Fe, Mo, Cu, Co, Fe, Co-Fe-B, MgO, Ta, TiO_2 thin films by **(DC/RF) magnetron sputtering**

UV-Photolithography of Mo, Au, Ni-Fe, Cu thin films.

Atomic Force Microscopy Operator

Electronic and Magneto Transport Measurement: I-V Characterization (Two probe and Four probe), Giant Magneto-Resistance (GMR), Anisotropic Magneto-Resistance (AMR)

Characterization of Logic Elements (Memristor, Spin valve)

Optical Measurement: Magneto-Optical Kerr Effect (MOKE)

Teaching

Teaching Assistant (2020-2022), Advanced Solid State Physics Lab, Department of Physics,
Shahid Beheshti University

Teaching Assistant (2018-2019), Quantum Mechanics, Department of Science, Hakim Sabzevari University


Personal Info


Nationality: Iranian

Date of Birth: 21/01/1997

Contact Info

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 Department of physics, Shahid Beheshti University, Tehran, Iran

Languages

Persian (Native)

English (Professional Working Proficiency)

Research Interest

Spintronic Devices

2D-Materials

Valleytronics

Fabrication Thin Films via Chemical and Physical Methods

Magnetism and Electronic Properties of Materials

Software Skills

SolidWorks, Origin Pro, Python, X'pert, Mathematica, LaTeX

Publication

In progress “Tuning Filament and Interface Type Memristivity in ZrO₂ Transparent Thin Films by Roughness Control”

M.J. Kamali Ashtiani; [Ali Rafiei](#); L. Jamilpanah; S.M. Mohseni

Sep 2022 “Ketamine Plasmonic Sensor Using Polyaniline-rGO-Fe₃O₄ Nanocomposite Thin Layer”

Amir Reza Sadrolhosseini; S. Mehri Hamidi; Mahmood Kazamzad; [Ali Rafiei](#); Farnaz Amouyan; Somayeh Sadeghi
Sensors and Actuators A: Physical, 21 September 2022, 113896

Feb 2022 “Study of UV light Effect on Graphene Oxidation Using Raman Spectroscopy”

Somayeh Gholipour; Maryam Bahreini; Mohammad reza Jafarfard; Ahmad Hosseinzadegan; Majid Mohseni; Parnia Bastani; [Ali rafiei](#)
The 28th Iranian Conference on Optics and Photonics

Jan 2021 “Construction of Memristors Consisting of Fully 2D-Materials”

Parnia Bastani; Loghman Jamilpanah; Behnam Azizi; Javad Shoa e Gharehbagh; [Ali Rafiei](#); Seyed Majid Mohseni
The 10th Iran national Vacuum Conference, University of Tabriz, Iran

Select Courses

- | | | | |
|---|-----|--------------------------|-----|
| • Advanced Electrodynamics (I) | 4/4 | • Quantum Mechanics (II) | 4/4 |
| • Advanced Magnetism and Magnetic Materials | 4/4 | • Quantum Mechanics (I) | 4/4 |
| • Advanced Statistical Mechanics (I) | 4/4 | • Super Conductivity | 4/4 |
| • Computational Physics | 4/4 | | |
| • Advanced Quantum Mechanics (I) | 3/4 | | |
| • Nano Structure of Materials | 4/4 | | |

References



Prof. Seyed Majid Mohseni

- Department of Physics, Shahid Beheshti University, Iran
- m-mohseni@sbu.ac.ir, majidmohseni@gmail.com
- <http://spin.sbu.ac.ir>



Dr. Loghman Jamilpanah

- Swiss Federal Laboratories for Materials Science and Technology, Dübendorf, Switzerland
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