

Mahdi Asgari

## Mahdi Asgari Curriculum Vitae

Faculty of science, K.N.Toosi University of Technology.

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### Main Areas of Expertise:

Solid state physics

Atomic and molecular physics

Nano Science and Technology

Computational Simulation of Medical and condensed matter Physics problems

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### Education:

**M.Sc.**, Applied physics (Solid State physics), K. N. Toosi University of Technology, Tehran, Iran (2014-2016)

**Thesis title:** *Investigation of Thermodynamic Properties of Nano superconductor  $Sr_2RuO_4$ , Considering Energy Gap Fluctuations.*

**Cumulative GPA of M.Sc:** 16.31 out of 20

**Thesis's mark:** 19 out of 20

**B.Sc.**, Applied physics (Atomic and Molecular physics), Kharazmi University, Tehran, Iran (2008 - 2013)

**High School Diploma** majoring mathematics at "Sharif High School", Tehran, Iran (2004 - 2008)

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### Research Interests:

**Medical Physics, Biophysics and Biomedical Engineering:** Hyperthermia Treatment, Laser Therapy, Photo-thermal Therapy, Cancer Research, MRI, X-Ray, Micro and Nano fluidic

**Monte Carlo and Finite Element Studies:** Quantum Espresso, Geant4 Toolkit, MCNP, COMSOL Multi-physics

**Nano-Science and Technology:** Nanoparticles Synthesis, SPR Gold Nanoparticle

**Solid State Physics, Condensed Matter Physics:** Electron Correlation System, Superconductivity and Superfluidity, Magnetism, Insulator Physics, DFT Study, material Science

**Atomic and Molecular Physics:** Plasma Medicine, Liquid Crystal Laser, Solid State Laser, Laser Diode, Practical Optics, NMR and Raman Spectroscopy

## Academic Experience:

**Workshop, Organizing and teaching "COMSOL Multiphysics"** , K. N. Toosi University of Technology, Tehran, Iran. (2016).

**Workshop, Organizing and teaching "NMR in Spectroscopy"**, Physics department of Kharazmi University, Tehran, Iran (2012).

**Teaching Assistant** of "General Physics I" course in Physics Department of K. N .Toosi University of Technology, Tehran, Iran. (2015).

**Teaching Assistant** of "General Physics II" course in Physics Department of K. N. Toosi University of Technology, Tehran, Iran. (2015).

**Teaching Assistant** of "General Physics I" course in Physics Department of Kharazmi University, Tehran, Iran. (2012).

**Lecturer** of "Physics and Mathematics" Khajeh Nasir Institute. (2014-2016).

**Lecturer** of "Physics and Mathematics" Ghalamchi Institute. (2010-2012).

**Lecturer** of "Physics and Mathematics" Ideh Institute. (2010).

**Research Assistant** in Computational and experimental study of the use of gold nanoparticles in the treatment of eye tumors in Laser Therapy at the Ophthalmic Research Center (ORC) laboratory of Labbaffinezhad hospital (2014 up to now).

**Participating in Workshops:** Geant4, Quantum Espresso, MCNP, COMSOL

## Attendance in Conferences:

- 1- **"ICTR-PHE, International Conference on Translational Research in Radio-Oncology, physics for Health in Europe"**. CERN, Geneva, Switzerland. (February, 2016)
  - 2- **"Many Body Physics in Condensed Matter System"**. K. N. Toosi university Of Technology, Tehran., Iran. (November, 2015)
  - 3- **"10<sup>th</sup> International Conference on Magnetic and Superconducting Materials (MSM17)"**. Sharif University of Technology, Tehran Iran. (September, 2017)
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## Scientific Positions:

**Member** of Physics Society of Iran (*PSI*)

**Member** of Iranian Nanotechnology Society (*INS*)

**Member** of Iranian Nanotechnology Initiative Council

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## Job experiences:

**Employee of informatics Company**, Hardware: Montage, Assembly, Repair, and Diagnostics\_ Software: Operating System, Tehran, Iran.

**Lecturer** in Ideh Institute, Tehran, Iran (Mathematic & physics)

**Lecturer** in Khajeh Nasir Institute, Tehran, Iran (Mathematic & physics)

**Lecturer** in Ghalamchi Institute, Tehran, Iran (Mathematic & physics)

**Education Counselor** in Ghalamchi Institute, Tehran, Iran.

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## Publication and papers:

- 1- M. Asgari, R. Afzali. "*Energy Evaluation for bulk and nanoascale unconventional superconductor  $Sr_2RuO_4$ , Considering Energy Gap Fluctuation; Green's function approach*". (Under review in Journal of IEEE Transactions on Applied Superconductivity).
  - 2- S. Asadi, F. Rezaei, M. Asgari, M. Vahidian, M.F. Samavat, M. Olfat. "*Laser therapy of human choroidal Melanoma in the presence of gold nanoparticles - Monte Carlo and In Vitro Study*". Journal of Radiotherapy & Oncology, Volume 118, Supplement 1, Page S4, (2016).
  - 3- R. Afzali, M. Asgari. "*The effects of Nano-Scale confinement on Unconventional Superconductor with Ruthenate Compounds*". Conference of Many Body Physics Systems (Bulk and Nano-Scale). K. N. Toosi University of Technology. Tehran, Iran, November (2015).
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## Research review manuscripts:

- 1- Radiation therapy
  - 2- Nanotechnology
  - 3- Monte Carlo study
  - 4- Many Body Physics
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## Talks:

Many Body Physics, the effects of Nano-scale on the  $\text{Sr}_2\text{RuO}_4$  Superconductor:

- K.N. Toosi University of Technology, Tehran, Iran (2015).

Gold nanoparticles and their effects on cancer cells in Laser Therapy:

- International Conference on Translational Research in Radio-Oncology, physics for Health in Europe. CERN, Geneva, Switzerland (2016).

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## Computer knowledge:

Programming FORTRAN, Programming C++, MCNP code, Geant4 toolkit, COMSOL software, Quantum Espresso, Mathematica, MATLAB

Operating Systems: Windows, Linux.

Software: Microsoft Office, Origin, GetData, Photoshop, Excel, Techplot, Latex, Assembling and montage

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## Language Knowledge:

Native Language: Persian

Other Language: Good Proficiency in verbal and written skills of English

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## Interests:

Computer & Internet, Learning new languages, Reading Books, Mountain climbing, Traveling, Music & Movies, Swimming, Nature Photography, Singing, Football, Playing Guitar, Bodybuilding.

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## Selected Awards and Distinctions:

**Rank 2 of 30** between students of master's degree, Tehran, Iran

**Rank 1 of about 100** between students of high school, Tehran, Iran

**Rank 2 of 18** in provincial taekwondo competition, Tehran, Iran (2004)

**Rank 3 of 20** in provincial canoe competition, Tehran, Iran (2007)

**Rank 1 of 10** in student swimming competition, Tehran, Iran (2012)

**Rank 2 of 15** in student chess competition, Tehran, Iran (2011)

**Rank 3 of 8 teams** in student football competition, Tehran, Iran (2011)

**Rank 1 of 13** in student ping-pong competition, Tehran, Iran (2014)

Professional in exercising and coaching of bodybuilding, Tehran, Iran (2011-2016)