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Assistant Professor of Nanomaterials, Department of Materials Engineering,
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I earned my B.Sc, M.Sc, and P.hD degrees all from Department of Physics, Sharif University of Technology. I am presently an assistant professor of Nanomaterials at department of Materials Engineering, Tarbiat Modares University. My main research interests are in the area of nanomaterials synthesis, processing and applications especially, laser processing of nanomaterials, oxide semiconductors, arc discharge synthesis and processing of nanomaterials, photo-catalysts, water splitting and optical nanomaterials.

Educational Background

- B. Sc. Physics,, Sharif University of Technology, Tehran, Iran.
- M. Sc. Physics, Sharif University of Technology, Tehran, Iran.
- Ph. D. Physics, Sharif University of Technology, Tehran, Iran.

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Research Interests

- Laser processing of nanomaterials
- Nanostructure semiconductors
- Arc discharge synthesis and processing of nanomaterials
- Nanostructure Photo-catalysts
- water splitting; Solar H₂ Production From Water
- Optical nanomaterials
- Two dimensional nanomaterials
- Oxide and Nitride nanomaterials
- Nanomaterials application in water treatment
- Nanostructure materials based sensors

Teaching

- Physics of Nanostructures
- Quantum Mechanics for Nanostructures
- Nanomaterials II
- Nanomaterials Characterization
- Introduction to Nanomaterials (at Sharif University)
- Semiconductor Materials
- Special Topics in Nanomaterials
- Synthesis of Nanomaterials

Collaborators

- Dr. Hamid Delavari, Department of Materials Eng. Tarbiat Modares University, Tehran, Iran.
- Dr. Amin Yourdkhani, Department of Materials Eng. Tarbiat Modares University, Tehran, Iran.
- Dr. Mohammad Akbarzadeh Pasha, Department of Physics, Mazandaran University, Babolsar, Iran.
- Dr. Seyyed Abbas Mousavi, Department of Chemical and Petroleum Eng., Sharif University of Technology, Tehran, Iran.

Nanostructures Lab. & Research Group

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Publications

Journal Papers

1. S.M.Mahdavi, A.Iraji zad, R.M.Tilaki, "*The effect of target annealing temperature on optical and structural properties and composition of CdS thin films prepared by pulsed laser*", **Optical Materials**, Vol. 27, Issue 10, **2005** pp.1583-1586. ; G.S. No.

2. R.M. Tilaki, A. Iraji zad, S.M. Mahdavi, "*Stability, size and optical properties of silver nanoparticles prepared by laser ablation in different carrier media*", **Applied Physics A**, Vol. 84, Issue 12, **2006** pp. 215-219. ; G.S. No.

3. R.M. Tilaki, A. Iraji zad, S.M. Mahdavi, "*Size, composition and optical properties of copper nanoparticles prepared by laser ablation in liquids*" **Applied Physics A**, Vol. 88,, Issue 2, **2007** pp. 415-419. ; G.S. No.

4. R.M. Tilaki, A. Iraji zad, S.M. Mahdavi, "*The effect of liquid environment on size and aggregation of gold nanoparticles prepared by pulsed laser ablation*" **Journal of Nanoparticle Research**, Vol. 9, Issue 5 **2007** pp. 853-860. ; G.S. No.

5. S. M. Mahdavi, A. Irajizad, A. Azarian, R. M. Tilaki, "*Optical and structural properties of copper doped CdS thin films prepared by pulsed laser deposition*", **Scientia Iranica**, Vol. 15 Issue 3 **2008** pp. 360-365. ; G.S. No.

6. Ahmad Ramazani SA, Seyyed Abbas Mousavi, Ehsan Seyedjafari, Reza Poursalehi, Shohreh Sareh, Kaveh Silakhori, Ali Akbar Poorfatollah, Amir Nasser Shamkhali, "*Polycarbonate surface cell's adhesion examination after Nd: YAG laser irradiation*", **Materials Science and Engineering: C**, Vol. 29 Issue 4 **2009** pp. 1491-1497. ; G.S. No.

7. M Akbarzadeh Pasha, R Poursalehi, MA Vesaghi, A Shafiekhani, "The effect of temperature on the TCVD growth of CNTs from LPG over Pd nanoparticles prepared by laser ablation", **Physica B: Condensed Matter**, Vol. 405 Issue 16 **2010** pp. 3468-3474. ; G.S. No.

8. Mahdi Gholampour, Amir Abdollah-Zadeh, Reza Poursalehi, Leila Shekari, "*Synthesis of GaN nanoparticles by DC plasma enhanced chemical vapor deposition*", **Advanced Materials Research**, Vol. 829 Issue 0 **2014** pp. 897-901. ; G.S. No.

9. Samaneh Malek, Reza Poursalehi, "*Nanosecond Pulsed Laser Heating of Colloidal Copper Nanoparticles in Water*", **Advanced Materials Research**, Vol. 829 Issue 0 **2014** pp. 263-267. ; G.S. No.

10. MJ Torkamany, F Malek Ghaini, R Poursalehi, "*Dissimilar pulsed Nd: YAG laser welding of pure niobium to Ti-6Al-4V*", **Materials & design**, Vol. 53 Issue 0 **2014** pp. 915-920. ; G.S. No.

11. M Gholampour, A Abdollah-zadeh, R Poursalehi, L Shekari, "*Gold catalyst effect on the morphological and structural properties of GaN nanostructures deposited by plasma enhanced chemical vapor deposition*", **Materials Letters**, Vol. 120 Issue 0 **2014** pp. 136-139. ; G.S. No.

12. N Rahnemai Haghighi, R Poursalehi, "*The Effect of Liquid Environment on Composition, Colloidal Stability and Optical Properties of Nickel Nanoparticles Synthesized by Arc Discharge in Liquid*", **Procedia Materials Science**, Vol. 11 Issue 0 **2015** pp. 347-351. ; G.S. No.

13. N Ahmadi, R Poursalehi, MK Moravvej Farshi, "*The Interparticle Coupling Effect on Plasmon Resonance Properties of Magnetite@ Au Magnetoplasmonic Nanoparticles*", **Procedia Materials Science**, Vol. 11 Issue 0 **2015** pp. 254-258. ; G.S. No.

14. A Tayefeh, SA Mousavi, M Wiesner, R Poursalehi, "*Synthesis and Surface Characterization of Magnetite-Titania Nanoparticles/Polyamide Nanocomposite Smart RO Membrane*", **Procedia Materials Science**, Vol. 11 Issue 0 **2015** pp. 342-346. ; G.S. No.

15. M Gholampour, A Abdollah-zadeh, L Shekari, R Poursalehi, "*From Nanoparticles to Nanowires of GaN with Different Hydrogen Gas Flow Rates by PDC-PECVD*", **Procedia Materials Science**, Vol. 11 Issue 0 **2015** pp. 299-303. ; G.S. No.

16. M Gholampour, A Abdollah-zadeh, R Poursalehi, L Shekari, S Hatamikhah, "*Synthesis of GaN Cauliflower-Like Nanostructures via Plasma Enhanced-CVD*", **Procedia Materials Science**, Vol. 11 Issue 0 **2015** pp. 347-351. ; G.S. No.

17. N Iranpour Anaraki, R Poursalehi, "*Shielding Effectiveness of Polymeric Nanocomposites Filled with Iron/Wüstite Nanoparticles*", **Procedia Materials Science**, Vol. 11 Issue 0 **2015** pp. 700-705. ; G.S. No.

18. S Dadashi, R Poursalehi, H Delavari, "*Structural and optical properties of pure iron and iron oxide nanoparticles prepared via pulsed Nd: YAG laser ablation in liquid*", **Procedia Materials Science**, Vol. 11 Issue 0 **2015** pp. 722-726. ; G.S. No.

19. A Ziashahabi, R Poursalehi, "*The Effects of Surface Oxidation and Interparticle Coupling on Surface Plasmon Resonance Properties of Aluminum Nanoparticles as a UV Plasmonic Material*", **Procedia Materials Science**, Vol. 11 Issue 0 **2015** pp. 434-437. ; G.S. No.

20. N Rahnemai Haghighi, R Poursalehi, "*Size, Morphology and Optical Properties of Titanium-based Colloidal Nanoparticles Prepared by Dc Electrical Arc Discharge in Different Liquids*", **Procedia Materials Science**, Vol. 11 Issue 0 **2015** pp. 661-665. ; G.S. No.

21. M Faraji, R Poursalehi, M Aliofkhazraei, "*The Effect of Surfactant on Colloidal Stability, Oxidation and Optical Properties of Aluminum Nanoparticles Prepared via Dc Arc Discharge in Water*", **Procedia Materials Science**, Vol. 11 Issue 0 **2015** pp. 684-688. ; G.S. No.

22. H Zabihi Hashjin, R Poursalehi, "*Optical Properties of Pure and Alloyed Silver-Copper Nanoparticles Embedded and Coupled in Dielectric Matrixes*", **Procedia Materials Science**, Vol. 11 Issue 0 **2015** pp. 717-721. ; G.S. No.

23. S Dadashi, H Delavari, R Poursalehi, "*Optical Properties and Colloidal Stability Mechanism of Bismuth Nanoparticles Prepared by Q-switched Nd: Yag Laser Ablation in Liquid*", **Procedia Materials Science**, Vol. 11 Issue 0 **2015** pp. 679-683. ; G.S. No.

24. E Kheradmand, H Delavari, R Poursalehi, "*The Effect of Dissolved Oxygen in Arc Medium on Crystal Structure and Optical Properties of Iron Based Nanoparticles Prepared via Dc Arc Discharge in Water*", **Procedia Materials Science**, Vol. 11 Issue 0 **2015** pp. 695-699. ; G.S. No.

25. SH Tabari, Y Jamali, R Poursalehi, "*Multi-scale simulation of carbon nanotubes interactions with cell membrane: DFT calculations and molecular dynamic simulation*", **Procedia Materials Science**, Vol. 11 Issue 0 **2015** pp. 423-427. ; G.S. No.

26. M Baghani, M Aliofkhazraei, R Poursalehi, "*Microwave-assisted Sintering of Fe-Al₂O₃ Nanocomposites: Study of Corrosion and Wear Properties*", **Procedia Materials Science**, Vol. 11 Issue 0 **2015** pp. 689-694. ; G.S. No.

27. SH Hashemian Rahaghi, R Poursalehi, R Miresmaeili, "*Optical Properties of Ag-Cu Alloy Nanoparticles Synthesized by DC Arc Discharge in Liquid*", **Procedia Materials Science**, Vol. 11 Issue 0 **2015** pp. 738-742. ; G.S. No.

28. A Ziashahabi, R Poursalehi, "*Optical Properties of Al@ Al₂O₃ Nanorod as a UV and Visible Wavelengths Plasmonic Nanostructure*", **Procedia Materials Science**, Vol. 11 Issue 0 **2015** pp. 743-748. ; G.S. No.

29. M Gholampour, A Abdollah-zadeh, L Shekari, R Poursalehi, "*A catalyst free method to grow GaN nanowires on porous Si at low temperature*", **Ceramics International**, Vol. 41 Issue 10 **2015** pp. 13855-13860. ; G.S. No.

30. S. Malek, R. Poursalehi, "*The Effects of Laser Wavelength and Particle Size on Heating and Melting of Gold Nanoparticles Dispersed in Liquid*", **Scientia Iranica**, Vol. 11 Issue 0 **2016** pp. 1489-1495. ; G.S. No. **123113**

31. MJ Torkamany, F Malek Ghaini, R Poursalehi, AFH Kaplan, "*Combination of laser keyhole and conduction welding: Dissimilar laser welding of niobium and Ti-6Al-4V*", **Optics and Lasers in Engineering**, Vol. 79 Issue 0 **2016** pp. 9-15. ; G.S. No. **117198**

32. MJ Torkamany, F Malek Ghaini, R Poursalehi, "*An insight to the mechanism of weld penetration in dissimilar pulsed laser welding of niobium and Ti-6Al-4V*", **Optics & Laser Technology**, Vol. 79 Issue 0 **2016** pp. 100-107. ; G.S. No. **117200**

33. A Mosleh, H Shahverdi, R Poursalehi, "*Characterization of Al-CNT Composite Nanoparticles Synthesized by Electrical Explosion of Wire in Acetone*", **Journal of Advanced Materials in Engineering**, Vol. 35 Issue 2 **2016** pp. 47-53. ; G.S. No.

34. Mohammad Akbarzadeh Pasha, Reza Poursalehi, "*Carbon nanotube formation over laser ablated M and M/Pd (M= Fe, Co, Ni) catalysts: The effect of Pd addition*", **Fullerenes, Nanotubes and Carbon Nanostructures**, Vol. 24 Issue 10 **2016** pp. 611-621. ; G.S. No. **125359**

35. Mohammad Baghani, Mahmood Aliofkhazraei, Reza Poursalehi, "*Low temperature microwave sintering of Cu_{0.7}Ni_{0.3} (Al₂O₃) nanocomposite*", **Powder Metallurgy**, Vol. 601 Issue 1 **2017** pp. 73-83. ; G.S. No. **128088**

36. Fatemeh Feiz Soleimani, Tayebah Saleh, Seyed Abbas Shojaosadati, Reza Poursalehi, "Green Synthesis of Different Shapes of Silver Nanostructures and Evaluation of Their Antibacterial and Cytotoxic Activity", **BioNanoScience**, Vol. 0 Issue 0 **2017** pp. 1-9. ; G.S. No. ???

37. Mehdi Firouzi, Reza Poursalehi, Hamid Delavari, Fakhredin Saba, Mohammad A Oghabian, "Chitosan coated tungsten trioxide nanoparticles as a contrast agent for X-ray computed tomography", **International Journal of Biological Macromolecules**, Vol. 98 Issue 0 **2017** pp. 479-485. ; G.S. No. 127875

38. M Farajimotlagh, R Poursalehi, M Aliofkhazraei, "Synthesis mechanisms, optical and structural properties of η -Al₂O₃ based nanoparticles prepared by DC arc discharge in environmentally friendly liquids", **Ceramics International**, Vol. 43 Issue 10 **2017** pp. 7717-7723. ; G.S. No. 128796

39. Arsalan Tayefeh, Mark Wiesner, Seyyed A Mousavi, Reza Poursalehi, "Modeling magneto-mechanical behavior of Fe₃O₄ nanoparticle/polyamide nanocomposite membrane in an external magnetic field", **Journal of Composite Materials**, Vol. 1 Issue 0 **2017** pp. 1-9. ; G.S. No. 131313

40. Mehdi Mohseni, Mahmood Abdollahi, Reza Poursalehi, Mohammad Reza Khalesi, "An insight into effect of surface functional groups on reactivity of Sphalerite (110) surface with Xanthate collector: a DFT study", **Journal of Mining and Environment**, Vol. 0 Issue 0 **2017** pp. 1-10. ; G.S. No. 132293

41. M Shourgeshty, M Aliofkhazraei, A Karimzadeh, R Poursalehi, "*Corrosion and wear properties of Zn--Ni and Zn--Ni--Al₂O₃ multilayer electrodeposited coatings*", **Materials Research Express**, Vol. 4 Issue 9 **2017** pp. 1-12. ; G.S. No. **131657**

42. S Dadashi, R Poursalehi, H Delavari, "*Formation, gradual oxidation mechanism and tunable optical properties of Bi/Bi₂O₃ nanoparticles prepared by Nd:YAG laser ablation in liquid: Dissolved oxygen as genesis of tractable oxidation*", **Materials Research Bulletin**, Vol. XX Issue XX **2017** pp. xx-xxx. ; G.S. No. **132800**

43. Azin Ziashahabi, Reza Poursalehi, Naimeh Naseri, "*Formation mechanism of bead-chain-like ZnO nanostructures from oriented attachment of Zn/ZnO nanocomposites prepared via DC arc discharge in liquid* ", **Materials Sciencein Semiconductor Processing**, Vol. 72 Issue 0 **2017** pp. 128-133. ; G.S. No. **132351**