

CURRICULUM VITAE

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First Name: Seyed Heydar

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Date of Birth: 1/3/1971

Married (2 Child)

EDUCATION

- PhD: Organic Chemistry, University of Tehran, Tehran, Iran (2001)
Thesis: *Studying of some of the Pericyclic Reactions in the Presence of Zeolite Y*
- MSc: Organic Chemistry, University of Tehran, Tehran, Iran (1995)
Thesis: *The Photocycloaddition reaction of Diphenylcyclopropenone with Norbornadiene*
- BSc: In Applied Chemistry, Isfahan University of Technology, Isfahan, Iran (1992)

PROFESSIONAL EXPERIENCE

- Associate Professor, Iranian Research Organization for Science and Technology (IROST), Department of Chemical Technology (2001-now)

EXECUTIVE EXPERIENCE

- Deputy of Administrative and Logistic Affairs, IROST (2019-22)
- Head of Technology Support and Knowledge Management Office, IROST (2016-18)
- Deputy of Department of Chemical Technology, IROST (2011-13) and (2014-16).
- Head of Department of Chemical Technology, IROST (2006-2008)
- Dean of Higher Education Office, IROST (2008-10)
- Member of Chemical Industries Scientific Committees for Khwarizmi International Award (2002-08, 2010, 2014-20)
- Member of Scientific Committees in Department of Chemical Industries (DCI), IROST (2002-08, 2010, 2014-16)
- Member of Scientific Committees for Institute of Advanced Technologies (IAT), IROST (2006-08)
- Head of Organic Chemistry and Polymer Department, Department of Chemical Technology, IROST (2002-04)

PUBLICATIONS

1. Journal Papers

- Z. Norouzi, **S.H. Mahmoudi Najafi**, S.A. Mozaffari, "Silver-loaded carbon sphere-in-rod 3D nano-architectures as electrode material for supercapacitors", *Diam. Relat. Mater.* (2022) 121, 108734.
- S. Torkaman, H. Rahmani, A. Ashori, **S. H. Mahmoudi Najafi**, "Modification of chitosan using amino acids for wound healing purposes: A review", *Carbohydr. Polym.* (2021) 258, 117675.
- S.A. Mozaffari, **S. H. Mahmoudi Najafi**, Z. Norouzi, "Hierarchical NiO@Ni(OH)₂ nano-arrays as high-performance supercapacitor electrode material", *Electrochim. Acta* (2021) 368, 137633.
- H. Rahmani, **S. H. Mahmoudi Najafi**, A. Ashori, M. Arab Fashapoyeh, F. Aziz Mohseni, S. Torkaman, "Preparation of chitosan-based composites with urethane cross linkage and evaluation of their properties for using as wound healing dressing", *Carbohydr. Polym.* (2020) 230, 115606.
- R. Kheyraadi, H. Rahmani, **S. H. Mahmoudi Najafi**, "Flame-retardant halogen-free polymers using phosphorylated hexaglycidyl epoxy resin", *High Perform. Polym.* (2018) 30, 2, 202-210.
- M. Ranjbar, M. Yousefi, M. Lahooti, **S. H. Mahmoudi Najafi**, A. Malekzadeh, "Synthesis of pure monoclinic zirconia nanoparticles using ultrasound cavitation technique", *J. Part. Sci. Technol.* (2016) 2, 2, 69-77.
- **S. H. Mahmoudi Najafi**, M. Baghaei, A. Ashori, "Preparation and characterization of acetylated starch nanoparticles as drug carrier: Ciprofloxacin as a model", *Int. J. Biolog. Macromol.* (2016) 87, 48-54.
- H. Rahmani, **S. H. Mahmoudi Najafi**, A. Ashori, M. Golriz, "Elastic Properties of Carbon Fibre-Reinforced Epoxy Composites", *Polym. Polym. Composite.* (2015) 23, 7, 475-481.
- H. Rahmani, **S. H. Mahmoudi Najafi**, S. Saffarzadeh-Matin, A. Ashori, "Mechanical Properties of Carbon Fiber/Epoxy Composites: Effects of Number of Plies, Fiber Contents, and Angle-Ply Layers", *Polym. Eng. & Sci.* (2014), 54, 11, 2676-2682.
- H. Rahmani, **S. H. Mahmoudi Najafi**, A. Ashori, "Mechanical performance of epoxy/carbon fiber laminated composites", *J. Reinfor. Plast. Composite.* (2014) 33, 8, 733-740.
- M. Ranjbar, O. Celik, **H. Mahmoudi Najafi**, S. Sheshmani, N. Akbari, "Synthesis of Lead(II) Minoxidil Coordination Polymer : A New Precursor for Lead(II) Oxide and Lead(II) Hydroxyl Bromide", *J. Inorg. Organomet. Polym.* (2012) 22, 4, 837-844.
- M. Ranjbar, **H. Mahmoudi Najafi**, N. Shahsavan, M. Yousefi, "Synthesis of Zinc(II) Oxide Wurtzite Nano Crystals Via Zn(II) Minoxidil Nanocomposite as a New Precursor", *Inter. J. Nanosci. Nanotech.* (2011) 7, 3, 147-152.
- M. Ranjbar, **S. H. Mahmoudi Najafi**, and SW Ng, "Catena-Poly[lead(II)-[μ-2,4-diamino-6-(piperidin-1-yl)pyrimidine N-oxide-κ²O:O]di-μ-iodido]", *Acta Cryst.* (2009) E65, m749.
- G. Mashayekhi, M. Ghandi, F. Farzaneh, M. Shahidzadeh, **H. Mahmoudi Najafi**, "Experimental and semi-empirical studies of effect of MCM-41 and cation exchanged zeolite Y on rate enhancement and

diastereoselectivity of Diels–Alder reaction of *p*-benzoquinone and some derivatives with cyclopentadiene”, *J. Mol. Catal. A: Chemical* (2006) 264, 220-226.

- **H. Mahmoudi Najafi**, M. Ghandi, F. Farzaneh, “A Simple Route to Selective Diels-Alder Reactions Using Modified Zeolite Y”, *Chem. Lett.* (2000) 29, 4, 358-359.
- R. Sadeghpour, M. Ghandi, **H. Mahmoudi Najafi**, F. Farzaneh, “The Oxa-Di- π -Methane Rearrangement of β,γ -Unsaturated Ketones Induced by the External Heavy Atom Cation Effect within a Zeolite”, *J. Chem. Soc., Chem. Commun.* (1998) 329-330.

2. Congress Papers

- Z. Norouzi, **S.H. Mahmoudi Najafi**, S.A. Mozaffari, “Facile One-pot Synthesis of Ni(OH)₂ Nanosheets Through a Solvent-free Reaction as an Efficient Supercapacitor Electrode Material”, 8th International E-congress on Nanosciences and Nanotechnology (ICNN 2021), Mashhad, Iran, Feb. 2021.
- Z. Norouzi, S.A. Mozaffari, **S.H. Mahmoudi Najafi**, “Chemical Bath Deposition: A Powerful Technique for Producing Nanoflake Structures as Advanced Material”, 8th International E-congress on Nanosciences and Nanotechnology (ICNN 2021), Mashhad, Iran, Feb. 2021.
- Z. Norouzi, S.A. Mozaffari, **S.H. Mahmoudi Najafi**, Ni(OH)₂ Nano-flakes Synthesized through Chemical Bath Deposition for Application in Supercapacitor Electrode Material”, 15th Annual Electrochemistry Seminar of Iran, Tehran, Iran, Oct. 2020.
- Z. Norouzi, S.A. Mozaffari, **S.H. Mahmoudi Najafi**, “Facile synthesis of MnCo₂O₄ nano-flower through electrodeposition as supercapacitor electrode material”, 15th Annual Electrochemistry Seminar of Iran, Tehran, Iran, Oct. 2020.
- Z. Norouzi, S.A. Mozaffari, **S.H. Mahmoudi Najafi**, “ZnO Template-assisted NiO Nano-spheres as Electrode Material for Supercapacitors”, 8th International Conference on Nanostructures (ICNS8), Sharif University, Tehran, Iran, Nov. 2020.
- **S. H. Mahmoudi Najafi**, M. Baghaei, A. Ashori, “Preparation of Lactic Acid Grafted Starch Acetate Nanoparticles as Drug Carriers”, 2nd International Conference in New Research on Chemistry & Chemical Engineering, Amirkabir University of Technology, Tehran, Iran, June 2016.
- Maryam Baghaei, **S. H. Mahmoudi Najafi**, "Preparation of starch acetate nanoparticles by ultrasonic irradiation", 23rd Iranian Seminar of Organic Chemistry, Sanandaj, Iran, Sep. 2015.
- Elnaz Mohammadi Ghelichlouei, **S. H. Mahmoudi Najafi**, "Synthesis of novel N-4-piperazinyl derivatives of ciprofloxacin containing pyrimidine moiety", 23rd Iranian Seminar of Organic Chemistry, Sanandaj, Iran, Sep. 2015.
- N. Saghafikia, **S. H. Mahmoudi Najafi**, "Nanoporous Metal-Organic Frameworks: Application in Hydrogen Storage", 3rd Hydrogen and Fuel Cell Conference, Tehran, Iran, May 2015.
- **S. H. Mahmoudi Najafi**, Z. Bashiri Sadr, A. Azimvand, "Preparation of Grape Pomace Powder as Antioxidant and Dietary Fiber Source Using Cryogenic Grinding", 4th National Congress on Medicinal Plants, Tehran, Iran, May 2015.

- H. Rahmani, **S. H. Mahmoudi Najafi**, A. Ashori; "Effects of fiber contents, fiber orientations and number of layers on some mechanical properties of carbon fiber/epoxy composites", 1st International Conference on Composite Pipes, Vessels and Tanks; Tehran; Iran; Jan. 2015.
- **S. H. Mahmoudi Najafi**; "Renewable Energy Resource Assessment: IRAN"; Expert Group Meeting on Renewable Energy Resource Assessment for Countries in the Asia-Pacific Region, Bangkok; Thailand; Sep. 2014.
- M. Ranjbar, M. Taghizadeh Mazandarani, S. Sheshmani, **H. Mahmoudi Najafi**; "Preparation and Characterization a New Nanocomposite of Potassium-Minoxidil by Sonochemical Method"; 15th Iranian Inorganic Chemistry Conference; Sabzevar; Iran; Sep. 2013.
- M. Ranjbar, M. Taheriyani, **H. Mahmoudi Najafi**, S. Sheshmani, "Synthesis and Characterization of Nanoparticle Copper(II) Minoxidil Complex under Ultrasound Irradiation", 15th Iranian Inorganic Chemistry Conference, Sabzevar, Iran, Sep. 2013.
- Z. Bashiri-Sadr, **S. H. Mahmoudi Najafi**, "Conventional Versus Cryogrinding of Medicinal Plants: St. John's Wort and Lemon Balm", 2nd National Congress on Medicinal Plants, Kish Island, Iran, 2012.
- N. Shahsavani, M. Ranjbar, M. Yousefi, **S. H. Mahmoudi Najafi**, "Synthesis and characterization of nano-composite of monoxide-zinc oxide", 2nd International Conference on Composite, Characterization, Fabrication and Applications, Kish Island, Iran, 2011.
- S. Sheshmani, M. Ranjbar, **S. H. Mahmoudi Najafi**, N. Akbari Mobarakeh, "Preparation and Characterization of Nano-structured Lead(II) Compounds", 12th National Inorganic Chemistry conference, Gilan, Iran, 2010.
- Z. Bashiri-Sadr, **S. H. Mahmoudi Najafi**, "Cryogenic Grinding in Medicinal Plants Processing", Regional Experts Meeting and Workshop on Herbal Medicine Processing, IROST, Tehran, Iran, 2010.
- N. Akbari Mobarakeh, M. Ranjbar, **S. H. Mahmoudi Najafi**, S. Sheshmani, "Synthesis and characterization of nano-structured lead containing materials from a polymeric Minoxidil bromide lead(II) complex as precursor", 3rd Conference on Nanostructures (NS2010), Kish Island, Iran, 2010.
- M. Ghandi, G. Mashayekhi, **H. Mahmoudi Najafi**, "The Modified Diels-Alder reaction of p-benzoquinone with cyclopentadiene in the presence of Zeolite Y", 24th Annual Meeting of British Zeolite Association (BZA 2001), England, 2001.
- M. Ghandi, **H. Mahmoudi Najafi**, F. Farzaneh, "A simple route to diastereo- and enantioselective Diels-Alder reactions using modified zeolite Y", 23rd Annual Meeting of British Zeolite Association (BZA 2000), England, 2000.
- M. Ghandi, R. Sadeghpour, **H. Mahmoudi Najafi**, F. Farzaneh, "The oxa-di- π -methane rearrangement of β,γ -unsaturated ketones induced by the external heavy atom cation effect within zeolite Y", 20th Annual Meeting of British Zeolite Association (BZA 1997), England, 1997.

Patents

- Z. Bashiri-Sadr, **S. H. Mahmoudi Najafi**, "Cryogrinding System for Medicinal Plants", Iranian patent No. 67252 (2010).

- H. Rahmani, R. Kheirabadi, **S. H. Mahmoudi Najafi**, "Non-halogenated flame-retardant epoxy resin containing polyglycidyl monomers and phosphorous curing agent", Iranian patent No. 91922 (2017).
- S.A. Mozaffari, **S. H. Mahmoudi Najafi**, Z. Norouzi, "Process for the Synthesis of High-Capacity Supercapacitor Electrode Material based on Nanorod-Nanoflake Clusters of $\text{MnO}_2 / \text{CuO}@ \text{Ni}(\text{OH})_2$ ", Iranian patent No. 106411 (2022).

Books

- **S. H. Mahmoudi Najafi**, S. Saffarzadeh Matin, "Hydrogen Storage Technologies", (2016).

SELECTED PROJECTS

- Preparation of the pharmaceutical Minoxidil
- Production of Ciprofloxacin from Q-Acid and Piperazine in Aqueous Medium
- Design and Fabrication of a Cryogrinding Prototype System for Medicinal Plants Processing
- Preparation of Grape Pomace Powder as Antioxidant Dietary Fiber by Cryogrinding Technology
- Technology Development of Three Standardized Medicinal Plant Products for the Food, Cosmetic and Pharmaceutical Industries using Cryogrinding Technology
- Fabrication and Evaluation of Cellulosic based Capsule Shell
- Production of Carbon Nanotubes in the Presence of Modified Silicate Zeolites
- Feasibility Study of Hydrogen Storage Technologies
- Preparation of Epoxy and Polyimide Adhesives with Applicability in Space Environments

COURSES OFFERED

- Organic Chemistry
- New Trends in Organic Synthesis
- Chemistry of Heterocycles

RESEARCH INTERESTS

- Synthesis and Extraction of Organic and Natural Compounds
- Nanoscience and Nanotechnology
- Hydrogen Storage Technologies
- Organic Reactions in Zeolites
- New Polyimides and Epoxy Resins and Polymeric Reinforced Composites
- New Nanostructures as Supercapacitor Materials