

## Curriculum Vitae

**Zeinab Hezarkhani**

**Postdoctoral Researcher**

**Research Institute for Applied Physics and Astronomy,  
University of Tabriz, Tabriz, Iran.**

**E-mail: z\_hezarkhani@sbu.ac.ir, hezarkhani@tabrizu.ac.ir,  
hezarkhani\_z@yahoo.com**

**Tel: +98-41-33392996**

---

### **Education and Research:**

#### **INEF Post-Doctoral Fellow at Photonics Group (June 2017-Present)**

Research Institute for Applied Physics and Astronomy, University of Tabriz,  
Tabriz, Iran

#### **PhD in Organic Chemistry (September 2012 - September 2016)**

Organic Chemistry Group, Shahid Beheshti University, Tehran, Iran.

Thesis title: "Synthesis of 5-, 6-, and 7-membered nitrogen containing heterocyclic compounds in the presence of the novel nanocatalysts using the tandem oxidative and reductive reactions strategy"

Supervisor: Prof. Ahmad Shaabani

#### **Master of Science in Organic Chemistry (September 2010 - September 2012)**

Organic Chemistry Group, Shahid Beheshti University, Tehran, Iran.

Thesis title: "Synthesis of new organoselenium compounds with sulfonyl ketenimines *via* isocyanide-based multicomponent reactions"

Supervisor: Prof. Ahmad Shaabani

#### **Bachelor of Science in Pure Chemistry (September 2006 – June 2010)**

Pure Chemistry Group, Razi University, Kermanshah, Iran

---

### **Publications:**

#### **Papers:**

- 1) Hamid Mofakham, **Zeinab Hezarkhani**, Ahmad Shaabani "Cellulose-SO<sub>3</sub>H as a biodegradable solid acid catalyzed one-pot three-component Ugi reaction: Synthesis of  $\alpha$ -amino amide, 3,4-dihydroquinoxalin-2-amine, 4*H*-benzo[*b*][1,4]thiazin-2-amine and 1,6-dihydropyrazine-2,3-dicarbonitrile derivatives", *Journal of Molecular Catalysis A: Chemical*, **2012**, 360, 26–34.

- 2) Ahmad Shaabani, **Zeinab Hezarkhani**, Hamid Mofakham, Seik Weng Ng “Synthesis of highly regioselective bifunctional tricyclic tetrazole-1*H*-benzo[*b*][1,4]diazepins”, *Synlett*, **2013**, *24*, 1485-1492.
- 3) Ahmad Shaabani, **Zeinab Hezarkhani**, Shabnam Shaabani “Cellulose supported manganese dioxide nanosheet catalyzed aerobic oxidation of organic compounds”, *RSC Advances*, **2014**, *4*, 64419–64428.
- 4) Ahmad Shaabani and **Zeinab Hezarkhani** “Copper(II) and iron(II) tetraaminoand tetrasulfophthalocyanines supported on cellulose: synthesis, characterization and catalytic activity on aerobic oxidation of alkyl arenes and alcohols”, *Cellulose*, **2015**, *22*, 3027–3046.
- 5) Ahmad Shaabani, **Zeinab Hezarkhani**, Elham Badali “Wool supported manganese dioxide nano-scale dispersion: a biopolymer based catalyst for the aerobic oxidation of organic compounds”, *RSC Advances*, **2015**, *5*, 61759–61767.
- 6) Ahmad Shaabani, **Zeinab Hezarkhani**, Elham Badali “One-pot oxidative Ugi-type three-component reaction of aromatic hydrocarbons of petroleum naphtha: comparing catalytic effect of cellulose and wool–SO<sub>3</sub>H supported with manganese dioxide nanostructures”, *RSC Advances*, **2015**, *5*, 91966–91973.
- 7) Ahmad Shaabani and **Zeinab Hezarkhani** “Cobalt(II), copper(II), and iron(II) tetrasulfophthalocyanines covalently supported on wool: synthesis, characterization, and catalytic activity”, *Journal of Porphyrins and Phthalocyanines*, **2016**, *20*, 1–12.
- 8) Ahmad Shaabani, **Zeinab Hezarkhani**, Mohammad Tayeb Faroghi “Wool-SO<sub>3</sub>H and nano-Fe<sub>3</sub>O<sub>4</sub>@wool as two green and natural-based renewable catalysts in one-pot isocyanide-based multicomponent reactions”, *Monatshefte für Chemie - Chemical Monthly*, **2016**, *147*, 1963–1973
- 9) Ahmad Shaabani, **Zeinab Hezarkhani**, Elham Badali “Natural silk supported manganese dioxide nanostructures: Synthesis and catalytic activity in aerobic oxidation and one-pot tandem oxidative synthesis of organic compounds”, *Polyhedron*, **2016**, *107*, 176–182.
- 10) Ahmad Shaabani, **Zeinab Hezarkhani**, Mina Keramati Nejad “AuCu and AgCu bimetallic nanoparticles supported on guanidine-modified reduced graphene oxide nanosheets as catalysts in the reduction of nitroarenes: tandem synthesis of benzo[*b*][1,4]diazepine derivatives”, *RSC Advances*, **2016**, *6*, 30247–30257.
- 11) **Zeinab Hezarkhani** and Ahmad Shaabani “Palladium(II) tetrasulfophthalocyanine covalently immobilized on keratin protein grafted graphene oxide nanosheets as a new high-performance catalyst for C–C coupling reactions”, *RSC Advances*, **2016**, *6*, 98956–98967.

- 12) Ahmad Shaabani and **Zeinab Hezarkhani** “Ferrite nanoparticles supported on natural wool in one-pot tandem oxidative reactions: the strategy to synthesize benzimidazole, quinazolinone, and quinoxaline derivatives”, *Applied Organometallic Chemistry*, **2017**, *31*, e3542.
- 13) **Zeinab Hezarkhani** and Ahmad Shaabani “Au- and Ag-loaded MnO<sub>2</sub> nanostructures supported on nitrogen- and nitrogen, sulfur-doped pyroproteins: synthesis and catalytic activity in organic transformations”, *Applied Organometallic Chemistry*, **2017**, *31*, e3624.
- 14) Ahmad Shaabani, **Zeinab Hezarkhani**, Mina Keramati Nejad “Cr- and Zn-substituted cobalt ferrite nanoparticles supported on guanidine-modified graphene oxide as efficient and recyclable catalysts”, *Journal of Materials Science*, **2017**, *52*, 96–112.
- 15) **Zeinab Hezarkhani**, Mohammad Tayeb Faroghi, and Ahmad Shaabani “Manganese(II) tetrasulfophthalocyanine covalently supported on natural silk: a new highly active catalyst to synthesize benzoxazepine derivatives in water”, *Applied Organometallic Chemistry*, **2017**, DOI: 10.1002/aoc.3764.
- 

## Conference Presentations:

### Oral:

- 1) Hamid Mofakham, **Zeinab Hezarkhani**, Ahmad Shaabani “A new entry of copper-catalyzed five-component reaction: Synthesis of phenylacetamides and 1,4-diazepan” *19<sup>th</sup> Iranian Seminar on Organic Chemistry, Vali-e-Asr University, Rafsanjan, Iran, 5-7 September, 2012.*
- 2) Ahmad Shaabani, **Zeinab Hezarkhani**, Hamid Mofakham “Synthesis of highly regioselective bifunctional tricyclic tetrazole-1*H*-benzo[*b*][1,4]diazepins” *20<sup>th</sup> Iranian Seminar on Organic Chemistry, Bu-Ali Sina University, Hamedan, Iran, 3-5 July, 2013.*
- 3) Ahmad Shaabani, **Zeinab Hezarkhani**, Sajjad Keshipour “Magnetic DNA-template palladium nanowires catalyzed aerobic oxidation of organic compounds” *The 22<sup>nd</sup> Iranian Seminar of Organic Chemistry, Tabriz University, Tabriz, Iran, 19-21 August, 2014.*
- 4) Ahmad Shaabani and **Zeinab Hezarkhani** “Copper(II) and iron(II) tetraamino- and tetrasulfophthalocyanines supported on cellulose: Synthesis, characterization and catalytic activity on aerobic oxidation of alkyl arenes and alcohols” *18<sup>th</sup> Iranian Chemistry Congress (ICC 2015), Semnan University, Semnan, Iran, August 30 - September 1, 2015.*

### Poster:

- 1) Ahmad Shaabani, **Zeinab Hezarkhani**, Hamid Mofakham “A new entry of copper-catalyzed five-component reactions: synthesis of carbonimidic-*N*-acetimidic

selenoanhydrides and selenonanesulfonamides” *The 22<sup>nd</sup> Iranian Seminar of Organic Chemistry, Tabriz University, Tabriz, Iran, 19-21 August, 2014.*

2) Ahmad Shaabani and **Zeinab Hezarkhani** “A novel synthesis of highly substituted imidazo[1,5-a]pyrazine selenone derivatives” *18<sup>th</sup> Iranian Chemistry Congress (ICC 2015), Semnan University, Semnan, Iran, August 30 - September 1, 2015.*

3) Ahmad Shaabani and **Zeinab Hezarkhani** “Covalently immobilization of palladium(II) tetrasulfophthalocyanine on keratin protein grafted graphene oxide nanosheets: a new high-performance catalyst for C–C coupling reactions” *The 24<sup>th</sup> Iranian Seminar of Organic Chemistry, Azarbaijan Shahid Madani University, Tabriz, Iran, 24-26 August, 2016.*

4) Ahmad Shaabani and **Zeinab Hezarkhani** “Cr– and Zn– substituted cobalt ferrite nanoparticles supported on guanidine–modified graphene oxide as two efficient and recyclable catalysts for catalytic applications” *The 24<sup>th</sup> Iranian Seminar of Organic Chemistry, Azarbaijan Shahid Madani University, Tabriz, Iran, 24-26 August, 2016.*

---

## **Research Background:**

Heterocyclic compounds synthesis

Catalyst preparation and applications

Nanocomposite synthesis and applications

Theoretical chemistry

---

## **Theoretical Experiences:**

### **Computational Chemistry Programs:**

- Amber
- Gaussian
- AutoDock Vina

### **Graphical Interfaces:**

- Avogadro
- GaussView
- Visual Molecular Dynamics (VMD)
- AutoDock Tools

---

### **Teaching Experience:**

Teaching assistant at Shahid Beheshti University.

- ✓ General chemistry laboratory I
  - ✓ General chemistry laboratory II
  - ✓ Organic chemistry laboratory I
  - ✓ Organic chemistry laboratory II
-