

# S. Hessam M. Mehr

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## OBJECTIVES

- Accelerating the rate of innovation in chemistry by leveraging modern-day tools and ideas
- Driving rapid open scholarly communication in the sciences
- Contributing to chemical education, software, and commercialization

## AREAS OF RESEARCH INTEREST

Automated design/discovery of tailor-made catalysts, molecular machines, biomimetic design

## EDUCATION

**Doctor of Philosophy** Chemistry, *University of British Columbia*, Vancouver, Canada  
Supervisor: Prof. Mark MacLachlan 2011–2016 (expected)

**Bachelor of Science** Electrical Engineering, *Sharif University of Technology*, Tehran, Iran  
Supervisor: Prof. Khashayar Mehrani 2005–2009

## PUBLICATIONS

### Formylation of phenols using formamidine acetate

Mehr, S. H. M.; Depmeier, H.; Fukuyama, K.; Maghami, M.; MacLachlan, M. J. *Org. Biomol. Chem.*, **2017**<sup>1</sup>

### Stabilization of a Strained Heteroradialene by Peripheral Electron Delocalization

Mehr, S. H. M.; Patrick, B. O.; MacLachlan, M. J. *Org. Lett.*, **2016**, 18 (8), 1840–1843

### Deuteration of Aromatic Rings Under Very Mild Conditions Through Keto-Enamine Tautomeric Amplification

Mehr, S. H. M.; Fukuyama, K.; Bishop, S.; Lelj, F.; MacLachlan, M. J. *J. Org. Chem.*, **2015**, 80 (10), 5144–5150

### Novel PPV/Mesoporous Organosilica Composites: Influence of the Host Chirality on a Conjugated Polymer Guest

Mehr, S. H. M.; Giese, M.; Qi, H.; Shopsowitz, K.; Hamad, W. Y.; MacLachlan, M. J. *Langmuir*, **2013**, 29 (40), 12579–12584

### Role of Entropy and Autosolvation in Dimerization and Complexation of C<sub>60</sub> by Zn<sub>7</sub> Metallocavitands

Frischmann, P.D.; Mehr, S. H. M.; Patrick, B. O.; Lelj, F.; MacLachlan, M. J. *Inorg. Chem.*, **2012**, 51 (6), 3443–3453

### Influence of asymmetry on the band structure of photonic crystals

Mehr, S. H. M.; Khorasani, S. in *OPTO*, International Society For Optics And Photonics, **2010**, 76091–76091

### eXAM: A Distributed Online Examination System

Mehr, S. H. M.; Bahraini, M. in *18th International Conference on Chemical Education*, IUPAC, **2004**, Turkey

## TALKS AND POSTER PRESENTATIONS

### Badass Bonding — Unsettled Electrons in Shape-Shifting Molecules

Inorganic Discussion Group, Department of Chemistry, 2016, UBC

### A Switch in Character: Deriving Novel Reactivity from Tautomerism

ISMSC 2015: 10th International Symposium on Macrocyclic and Supramolecular Chemistry, 2015, Strasbourg

### Kinetics by NMR: A Live Demonstration

8th Annual VIVA NMR Symposium, August, 2014, Vancouver

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<sup>1</sup>DOI: [10.1039/c6ob02727j](https://doi.org/10.1039/c6ob02727j)

**Using Tautomers for Gentle Deuteration of Benzene Rings**

97th Canadian Chemistry Conference and Exhibition, June, 2014, Vancouver

**Macrocycles as Functional Materials**

Canada-Japan Joint Symposium on Supramolecular Nanomaterials Science, May, 2012, Whistler

**OTHER RESEARCH**

**Summer 2010**

**Summer, Fall 2009**

Supervisor: Prof. Khashayar Mehrany

Sharif University of Technology

(BSc. Thesis) Time-domain study of beam scattering by finite-sized photonic crystals

**Spring, Summer 2008**

Institute of Biochemistry & Biophysics (IBB)

University of Tehran

Monte Carlo simulation of DNA damage by gamma rays

**LEADERSHIP, SERVICE**

**Vice president** Chemistry Graduate Student Society (CGSS), UBC, 2013–2014

**Presenter/facilitator** *Chemistry Field Trips* for high school students, UBC, 2012–2016

**Presenter/facilitator** *Chemistry Beyond the Magic* open house, UBC, 2011–2015

**Mathematical illustrator** Shahshahani, S. M. "Calculus" (in Farsi) <sup>2</sup>

**TEACHING EXPERIENCE**

**Shared Instrument Facility (TA)** University of British Columbia, 2012–2016

**Organic Chemistry** Farzangan High School, 2005–2010

**Digital Signal Processing Lab (TA)** Sharif Univ. Tech., 2009–2010

**Electromagnetism (TA)** Spring 2009, Sharif Univ. Tech.

**STUDENTS SUPERVISED**

**Hannah Depmeier** Multiple-formylation of electron-rich phenols 2016 (BSc)

**Mahboobeh Maghami** Tautomerism in Schiff base macrocycles 2014–2015 (PhD)

**Stephanie Bishop** Facile H/D exchange in salicylideneamine derivatives 2013–2014 (BSc)

**Marcus Farnfield** Salicylaldehydes as photodegradable crosslinkers 2013–2014 (BSc)

**SOFTWARE**

**Computational chemistry** Gaussian, AIMAll

**Programming** Python, Julia, Clojure, C, Go, Rust, HTML/CSS/JS, ~~TeX~~ [github.com/hessammehr](https://github.com/hessammehr)

**Numerical/symbolic computing** MATLAB, SciPy, Mathematica

**LANGUAGES**

**Farsi** Native

**English** Near native

**French, Italian** Fair

**Japanese** Basic

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<sup>2</sup>ISBN: 978-964-318456-8, 2008, Fatemi Publications, Tehran, Iran