S. Hessam Moosavi Mehr

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Personal information

Date of birth August 7, 1987, Tehran, Iran

Education

MASc Electrical Engineering, *University of British Columbia*, Vancouver, Canada 2010–

BSc Electrical Engineering, *Sharif University of Tech.*, Tehran, Iran (GPA: 16.5/20) 2005–2009

Preparatory School for the 37th Intl. Chem. Olympiad (IChO), *YSC*[1], Tehran, Iran 2004–2005

Diploma in the Physical Sciences, *Allameh Helli High School*, Tehran, Iran 2001–2004

Research interests

Condensed-matter, solid-state physics, photonics

Nanotechnology especially nanobiotechnology, molecular devices

Quantum mechanics especially as applied to molecular, chemical, and optical phenomena

Chemistry especially organic/inorganic synthesis, molecular/organic electronics

Computer science especially computational physics, chemistry, and embedded software

Digital signal processing especially Wavelets, STFT, DSP on embedded systems

Research experience

Summer 2010
Sina Khorasani — IPM + Sharif University of Technology
Parallel FDTD applied to the problem of scattering off a metal-patterned dielectric slab.

Summer, Fall 2009
Khashayar Mehrany — Dept. of Electrical Eng., Sharif Univ. of Tech.
(BSc. Thesis) Time-domain study of beam scattering by finite-sized photonic crystals using MEEP.

Spring, Summer 2009
Sina Khorasani — Dept. of Electrical Eng., Sharif Univ. of Tech.
Studying the influence of asymmetry on the band structure of photonic crystals using MIT Photonic Bands (MPB), including development of a Python front-end to MPB to facilitate automation and post-processing.

Spring, Summer 2008
Laboratory of Biophysics & Molecular Biology — Institute of Biochemistry & Biophysics (IBB)
Collaborating with a PhD student to devise the necessary phenomenology and a Monte Carlo algorithm to predict DNA damage as a result of gamma radiation.

Summer 2007
Seizure Prediction Group — Sharif University of Technology

[1] Young Scholars Club

Studying the application of digital signal processing (DSP) methods to the prediction of epileptic seizure onset using EEG signals.

Publications

S. H. Mousavi Mehr, S. Khorasani *Influence of asymmetry on the band structure of photonic crystals* , accepted for oral presentation at SPIE Photonics West, 2010, San Francisco, CA, USA

(As mathematical illustrator) S. M. Shahshahani *Calculus*[2], 2008, Fatemi Publications, Tehran, Iran

S. H. Moosavi Mehr *Organic Chemistry in a Nutshell* [3], March 2008

S. H. Moosavi Mehr, M. Bahraini *eXAM: An Distributed Online Examination System*, Proceedings of the 18th International Conference on Chemical Education, 2004, Turkey

Presentations & talks

Superconducting Single Photon Detectors, Winter 2010, Dept. of Electrical Eng., Sharif University of Tech.

Quantum Espresso, December 2009, Dept. of Electrical Eng., Sharif University of Technology

Qt: What? Why? How?, October 2009, Dept. of Electrical Eng., Sharif University of Technology

Gamma-Ray Damage to DNA: Method of Study and Phenomenology as Related to it, September 2008, Institute of Biochemistry & Biophysics (IBB), University of Tehran

TEX, April 2007, Dept. of Electrical Eng., Sharif University of Technology

Wavelets, January 2007, Dept. of Electrical Eng., Sharif University of Technology

Teaching experience

Organic Chemistry Farzangan High School, 2005–2010

Laboratory Instructor Digital Signal Processing Lab, Sharif Univ. Tech., 2009–2010

Chemistry for the IChO Allameh Helli High School, 2009–2010, 2004–2006

Electromagnetics (TA) Spring 2009, Sharif Univ. Tech.

Laboratory Instructor National Biology Olympiad, YSC, August 2008

Laboratory Assistant National Chemistry Olympiad, YSC, August 2006

Selected graduate courses

Nanoscale modeling and simulation

Organometallic chemistry

Photonic crystals

Applied quantum mechanics

Advanced computer programming

Areas of special ability

Interdisciplinary research

Laboratory work

Teaching

Technical writing

Computer programming, scientific computation, and computer typesetting

[2] ISBN: 978-964-318456-8

[3] Lecture notes for a one-day crash course I taught in Spring 2008, available on my website

Honors & awards

Ranked 3rd Photonics graduate entrance exam, 2009

Gold Medal (national top 6) National Chemistry Olympiad, Summer 2004, YSC[4], Tehran, Iran

Best Presentation Award First National Symposium on eLearning, 2003, Tehran, Iran

Computer skills

Operating systems Linux, Mac OS X, Windows

Typesetting and publishing LaTeX, Adobe InDesign

Scientific computation ChemOffice, Gaussian, GAMESS, MEEP, MPB, FEMLAB

Programming Python, Ruby, C/C++, JavaScript, HTML/CSS, x86 Assembly

Databases SQLite3, SQL Server, NoSQL

Numerical/symbolic computing MATLAB, SciPy, Mathematica

Languages

Farsi Native

English Fluent

French Fair

Arabic Fair

Test scores

GRE General, October 2008 Verbal: 530/800 (68%), Quantitative: 800/800 (94%), Writing: 4.0/6.0 (37%)

GRE Physics, October 2008 940/990(92%)

TOEFL iBT, August 2010 117/120

TOEFL iBT, August 2008 115/120

TOEFL PBT, December 2004 633/670

Service

Team Guide 38th Internation Physics Olympiad, July 2007, Isfahan, Iran

Head Resana Science[5], 2008–2009

Jury Member Giffoni Film Festival, July 2000, Giffoni, Italy

Other interests

Arts Typography, photography, calligraphy, abstract art

Music Traditional Iranian, classical, jazz, [alternative/progressive] rock

Humor British sketch comedy

Sports Swimming, badminton

Other Philosophy and ethics, history and biographies, reading and contributing to Wikipedia

[4] Young Scholars Club is the regulating body for national and international scientific Olympiads in Iran.

[5] Resana Science is the name collectively given to independent and collaborative research by the student community in the Department of Electrical Engineering, Sharif University of Technology.