SEYEDMOHAMMADHASSAN MIRFASIH

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Personal Information

Date of birth: 24 April 1989
Place of birth: Tehran, Iran

Education

M.Sc., Materials Science and Engineering — Sept. 2012 - Present
Sharif University of Technology
Current GPA: 3.5/4 (According to WES)
Thesis: Experimental Study of the effect of doping on optoelectronic properties of PbS quantum dots
Supervisor: Prof. A.Simchi

Sept. 2007-July 2012

B.Sc., Materials Engineerig
Amirkabir University of Technology(Tehran Polytechnic)
GPA in last 2 years: 3.6/4 (According to WES)
Thesis: Determination of optimized conditions for the electrolysis of gold-thiourea solutions
Supervisor: Dr. M.Naderi

Research Interests

- Photoelectrochemical water splitting
- Synthesis of solution-processable PbS quantum dots
- Photovoltaic applications of PbS quantum dots
- Doping quantum dots by transitional metals

Research Experience

Research Assistant — Nov. 2013-Present
Research Center for Nanostructured and Advanced Materials (RCNAM), Sharif University of Technology
- Synthesis and doping of PbS Quantum dots
- Quantum dot solar cell fabrication(spin-coating and sputter deposition of thin films)
- Supercritical fluid synthesis of PbS quantum dots

Research Assistant — March 2012-March 2013
Research Center for New Technologies in Life Sciences Engineering, University of Tehran
- Synthesis of magnetite and silica-coated magnetite nanoparticles
- Gold separation from copper anode slime by means of Fe_3O_4 magnetic nanoparticles

Publications

Surface Passivation of PbS Colloidal Quantum Dots for Photovoltaics Applications.
M.M. Tavakoli, **M.H. Mirfasih**, S. Hasanzadeha, A.A. Jazayeri, E. Hosseini, M. Naeeni, H. Aashuri, A..Simchi. 5th International Conference on Nanostructures, Kish Island, Iran, March 2014 (Accepted for oral presentation)

Novel Achievements in PbS Quantum Dot Solar Cells,
M.H.Mirfasih et. al., Nanostructured Solar cells Conference, Nov. 2013, Sharif University of Technology, Tehran, Iran

Recovery of gold ions from copper anode slime by means of magnetite nanoparticles
R. Ranjbar, M. Naderi,, Daneshpajouh, H. Omidvar, Z. Manafi, Gh. Amooabedini,Z. Seyedraoufi, N. Abdollahi, **M.H.Mirfasih**. 2nd International Conference on Nano Science and Technology ICNST 2011, Singapore.

Extraction of Gold from ore by means of nanoparticles
R. Ranjbar, M. Naderi, Gh. Amooabedini, H. Omidvar, **M.H.Mirfasih**, International conference of Science and Technology Policy for Sustainable Development, January 2011, Tehran (I presented the article in English to the audience.)

Work in Progress
The effect of doping on Photoluminscence behavior of PbS quantum dots, Journal of Luminescence

Workshops attended

Nanostructured Solar cells, Sharif University of Technology, Tehran, Iran — Nov. 2013

- Electrochemical Impedance Spectroscopy
- Measurement of Electron Densities and Distribution of Electronic Trap States in Solar cell
- Fabrication and Characterization of Dye-sensitized Solar Cells
- Absorption Calculations and Photon Management in Dye-Sensitized Solar Cells

Presentations

Graduate Presentations

"Quantum Dot Solar Cells", Principles and Properties of Nanomaterials II Course. — Spring 2013
Instructor: Dr.A.H.Shivaee

" Renaissance of DSSCs" , Nanostructured Solar Cells Course, — Fall 2013
Instructor: Dr. N.Taghavinia

" Precise Particle Size and Lattice Parameter Measurements by X-Ray Diffraction", Avanced Characterization and Analysis of Materials, — Fall 2013
Instructor: Dr. S.Asgari

"CNT-reinforced nanocomposites", Composites Course — Fall 2013
Instructor: Dr.A.Abachi.

Undergraduate Presentation — Spring 2011
3-Dimensional Atom Probe (3DAP) , Advanced Materials Course
Instructor: Dr.P.Marashi,

Selected Graduate Courses

- **Nanostructured Solar Cell** , Dr. N.Taghavinia — Fall 2013
- **Advanced Characterization methods of materials**, Dr.S.Asgari — Fall 2013
- **Principles and properties of Nanomaterials**, Dr.A.H.Shivaee(4.0/4.0) — Spring 2013
- **Advanced Powder metallurgy: Prof.A.Simchi** (4.0/4.0) — Spring 2013
- **Advanced Thermodynamics of materials ,** Dr. A.Simchi (4.0/4.0) — Fall 2012

Honors and Awards

- Ranked 18th among more than 5300 participants in National Entrance Exam of Materials Engineering Master's Course
- Ranked in top 1% in National Entrance Exam of Engineering Bachelors courses among more than 270,000 Participants

Professional Experience

- Technical Workshop Instructor, Sharif University of technology — since Jan. 2013
- Internship at Razi Metallurgical Research Center (RMRC) — summer 2010
- Executive Staff of the 1st national metallographic contest, Tehran Polytechnic

Lab Techniques

- UV-vis and Photoluminescence Spectroscopy and measurements: Interpreting Data
- FTIR and DLS interpreting Data
- J-V characterization of solar cells with potentionstat : PCE calculation using Fill Factor, V_{oc} and J_{sc})
- XRD Data analysis (Particle Size and Lattice Parameter Precise Measurements)
- TEM sample preparation.

Computer Skills

- ZView (Electrochemical Impedance Spectroscopy (EIS) measurement)
- ANSYS
- Factsage
- HSC
- LaTex
- Windows and Microsoft Office

Language Slills

TOEFL IBT: 103

- **Reading** :27
- **Listening** :28
- **Speaking:** 24
- **Writing:** 24

References

Dr. Abdolreza Simchi
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Assistant Professor in Department of Mining and Metallurgical Engineering, Tehran Politechnic, Tehran, Iran
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Dr. Nima Taghavinia
Associate Professor in Department of Physics, Sharif University of Technology, Tehran, Iran
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