europass Curriculum vitae

PERSONAL INFORMATION

Mandana Jalali

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PERSONAL STATEMENT

I am a Post-Doc researcher in university of Duisburg-Essen working on Nano-Bio-Photonics.

WORK EXPERIENCE

01/10/2010–13/02/2017

Geust Lecturer

Persian Gulf University, Bushehr (Iran)

Teaching: Mechanical Physics; Electricity and Magnetism; Special English for Physicists; physics laboratory 1; physics laboratory 2; physics laboratory 3, Optics Laboratory.

06/11/2016–31/11/2017

Researcher

Iran space research center, Shiraz (Iran)

Design and simulation of satellite sensors.

04/12/2017–Present

Post-Doc

General and Theoretical Electrical Engineering (ATE), Faculty of Engineering,University of Duisburg-Essen, Duisburg (Germany)

I work in the field of Nano-Bio-Photonics

EDUCATION AND TRAINING

01/09/2003–31/06/2008

Bachlor of Science

Shahid Chamran University, Ahwaz (Iran)

BSc Project:

"Physics Simulations Using Matlab"

01/09/2008–31/09/2010

Master of Science

Shiraz University, Shiraz (Iran)

Thesis:

"Computation of the Quantum Efficiency and the Decay Rate for an Emitter in the Vicinity of Nanostructures"

Important Courses:

Quantum Field Theory, Computational Physics

01/09/2011–06/11/2016

Ph.D

Shiraz University, Shiraz (Iran)

Thesis:

"Enhancing Solar Cell Efficiency via Plasmonic Nanostructures"

I spent nine months of my PhD program at General and Theoretical Electrical Engineering (ATE),

Faculty of Engineering,University of Duisburg-Essen

Courses:

Nonlinear Optics, Nano Optics, Plasmonic, Advanced Statistical Mechanics, Advanced Electrodynamics, Optical metamatrial

PERSONAL SKILLS

Mother tongue(s): Persian

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C2	C2	C2	C2	C2
	TOEFL=104				
German	A2	A2	A2	A2	A1

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user
Common European Framework of Reference for Languages

Communication skills: -good communication skills as well as collaborative personality

Job-related skills: **Scientific Skills:** Solar cell; Plasmonics; Nano optics; Nonlinear optics; Metamaterial; Material science; Nano technology; Quantum optics; Nano antenna; Electrodynamics; Statistical mechanics; Numerical analysis of Physical systems; Simulations; Matlab; Computational Physics, Optimization strategies.

Operating Systems: Linux, Windows

Software and Packages: Mathematics: Matlab; FDTD; FEM; COMSOL Multiphysics; Maple ;Mathematica; Genetic Algorithm.

I'm really good with computers and I can do various simulations. In the field of solar cells I'm an expert in theory and simulations with some experimentation experience.

ADDITIONAL INFORMATION

workshops:

- The organizer and tutor of electromagnetic simulation software (COMSOL Multiphysics), Shiraz, 2016.
- Lecturer of seminar on introduction to nanotechnology for high school students, Khorasan jonubi, 2014.
- Workshop on "How to Make Dye Synthesis Solar Cell", Sharif University of Technology, Iran, May 2012.
- Workshop on Writing Business Plan in Nano Technology, Tehran University of medical sciences, Iran, May 2012.
- Spring School on Nanotechnology, Shiraz, Iran, May 2013.
- Workshop on nano-bio photonics, Essen, Germany, March2015.

Honours and awards:

- Best Thesis Award from Iranian Nanotechnology Society
- Second Award of National Nano Competition among Physicist, Iran
- Wining Teaching Skill Degree in Nano Technology, Iran

Memberships

- The Physics Society of Iran
- Iranian Nanotechnology Society

Publications

1- Jalali, Mandana; Mohammadi, Ahmad; Zebarjad, Mohammad, “Investigating the effect of an emitter-nanoparticle distance on the quantum efficiency”. Physics Conference of Iran, Hamedan, Iran, September 2010.

2- Jalali, Mandana; Mohammadi, Ahmad; Zebarjad, Mohammad, “Controlling Spontaneous emission of an emitter inside dielectric Nano cavity”. Physics Conference of Payamnour, Isfahan, Iran, November 2010.

3- Jalali, Mandana; Mohammadi, Ahmad; Zebarjad, Mohammad, “Increasing effective quantum efficiency using plasmonic nanoparticles”. The 10th conference on condense matter, Shiraz, Iran, January 2011.

4- Jalali, Mandana; Mohammadi, Ahmad; Zebarjad, Mohammad, “Investigating the effect of whispering gallery modes in dielectric Nano particles on an emitter Purcell factor”. Spring Physics Conference of Iran, Tehran, Iran, May 2011.

5- Jalali, Mandana; Mohammadi, Ahmad, “Increasing solar cell efficiency using localized surface plasmon in Nano particles”. Conference of nanostructured solar cells, Tehran, Iran, September 2011.

6- Jalali, Mandana; Nadgaran, Hamid, “Photon Management of Silicon Photovoltaics through Scattering and Near Field Effect of Nanoparticles”. 5th International Conference on Nanostructures, Kish Island, Iran, March 2014.

7- Jalali, Mandana; Nadgaran, Hamid, “Light Trapping in a Submicron Space through Combination of Front and Back Nano Gratings, Applicable in Thin Film Solar Cells”. Asian Nano Forum Conference, Kish Island, Iran, March 2015.

8- Jalali, Mandana; Erni, Daniel; Nadgaran, Hamid, “Photon Management in c-Si Solar Cells via Plasmonic Nanogratings”. Nanobiophotonis symposium, Essen, Germany, March 2015.

9- Jalali, Mandana; Erni, Daniel, Nadgaran, Hamid, “Functionalizing Plasmonic Core-Shell Nanoparticles for Thin Film Solar Cells”. 1st electronic national conference on applied researches in science and engineering, Tehran, Iran, March 2015.

10- Jalali, Mandana; Erni, Daniel, Nadgaran, Hamid, “Semi-Periodic Gratings for Broadband Absorption in Thin Film Solar Cells”. Conference on laser and optics, Munich, Germany, June 2015.

11- Jalali, Mandana; Erni, Daniel, Nadgaran, Hamid, “Implementing Double Grating as a Photon Management Technique in Thin Film Solar Cells”. Submitted to Nano Research Letters, October 2016.

12- Jalali, Mandana, Hamid Nadgaran, and Daniel Erni. "Semiperiodicity versus periodicity for ultra broadband optical absorption in thin-film solar cells." Journal of Nanophotonics 10.3 (2016): 036018-036018.

13- Jalali, Mandana; Erni, Daniel, Nadgaran, Hamid, “Design of Silicon Nano-Bars Anti-Reflection Coating to Enhance Thin Film Solar Cells Efficiency”. Proceeding of 22nd conference on optics and photonics, Yazd University, January 2016, Yazd, Iran.

14- Jalali, Mandana; Erni, Daniel, Nadgaran, Hamid, “Comparison between Periodicity and Randomness from an Effective Refractive Index Point of View, Applicable to thin-film Solar Cells”. Proceeding of the 6th international conference on nanostructures (ICNS6), March 2016, Kish, Iran.

15- Jalali, Mandana, Hamid Nadgaran, and Daniel Erni. "Design of Silicon Nano-Bars Anti-Reflection Coating to Enhance Thin Film Solar Cells Efficiency." *International Journal of Optics and Photonics* 11.2 (2017): 79-86.

16- Mandana Jalali; Hamid Nadgaran; Daniel Erni. "Comparison between Periodicity and Randomness from an Effective Refractive Index Point of View; Applicable to thin-film Solar Cells". *Scientia Iranica*, 24, 6, 2017, 3536-3541. doi: 10.24200/sci.2017.4596.