Rana Asgari Sabet

Postdoctoral Researcher

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• Present Research

Designing the EIT-based all-optical transistors

• Education

Ph.D., Photonics, Sep 2010 –Feb 2015
Research Institute for Applied Physics and Astronomy, University of Tabriz, Tabriz, Iran
- Thesis: Study of the enhanced second order nonlinear effects in meta-material structures
- Supervisors: Dr. Habib Khoshsima, Dr. Abdolrahman Namdar
- Advisor: Dr. Vahid Ahmadi

M.Sc., Atomic and Molecular Physics (Laser), Sep 2006-Feb 2009
Department of Physics, University of Tabriz,Tabriz,Iran
- Thesis: Experimental study of holographic optical storage in Azo dye doped liquid crystal
- Supervisor: Dr. Habib Khoshsima
- Advisor: Dr. Habib Tajalli

B.Sc., Atomic and Molecular Physics, Sep 2002-Sep 2006
Department of Physics, University of Tabriz,Tabriz,Iran

• Research Interests

- Quantum optics
- Linear and nonlinear meta-materials and applications, Plasmonic nano-antenna
- Photonic crystals
- Optical properties and applications of the organic materials

• Experimental Experiences

- Preparing aligned dye doped liquid crystal cells
- Optical setups for holographic grating and data storage investigations
- Optical switching and sensors

- Spectroscopy
- Z-scan technique

• Theoretical Experiences

- Density Matrix Analysis
- Finite Element Frequency and Time Domain based simulation of meta-materials and plasmonic structure
- Finite Difference Time Domain simulations of waveguides

• Software Skills

- Computer Programming: MATLAB, MAPLE
- Simulations: COMSOL Multiphysics, FDTD solutions (Lumerical)

• Publications

1. "Coherent control of some optical properties in a system of molecular magnets" Ali Raheli, H R Hamedi, M Sahrai and **R Asgari Sabet**, *Laser Phys. Lett.,* 13, 015203 (6pp), **2016**.

2. "Utilizing the plasmonic resonance to enhance three wave mixing effects in nano-scale cut-wire" **Asgari Sabet, Rana**; Khoshsima, Habib. *Opt. Quant. Electron.*, 47:3337–3347, **2015**.

3. "Enhanced second-harmonic generation using plasmonic resonance of nano-scale metallic cut-wires" **Asgari Sabet, Rana**; Khoshsima, Habib; Namdar, Abdolrahman; Ahmadi,Vahid. *Eur. Phys. J. Appl. Phys.* 69, 20503, **2015**.

4. "Retrieve of the effective quadratic and cubic susceptibility in metamaterials" **Asgari Sabet, Rana**; Khoshsima, Habib; Namdar, Abdolrahman; Ahmadi, Vahid. *J. Mod. Opt.*, Vol. 62, No. 1, 11-15, **2015**.

5. "Experimental study of the photoisomerization of azo dye in nematic liquid crystal host" Habib Khoshsima&**Rana Asgari Sabet**. *Mol. Cryst. Liq. Cryst.*, Vol. 559: pp. 16–22, **2012**.

6. "The study of dynamic behaviour of transient grating in azo dye doped nematic liquid crystal" Habib Khoshsima ,Hadis Goodarzi , Sohrab AhmadiKandijani & **Rana Asgari Sabet**. *Mol. Cryst. Liq. Cryst.*, Vol. 560: pp. 62–66, **2012**.

7. "Real-time holographic investigation of azo dye diffusion in a nematic liquid crystal host", **Rana Asgari Sabet**, Habib Khoshsima. *Dyes Pigm.*, Vol. 87, 95-99, **2010.**

• Conference Presentations

1. "Enhanced effective second-order nonlinearity due to the plasmonic resonance of the gold nano wire", *21th Iranian Optics and Photonics Conference*, Shahid Beheshti University, Tehran, Iran, Jan **2015.**

2. "Enhanced second harmonic generation in nonlinear metamaterial structure", *20th Iranian optics and photonics conference*, University of Shiraz, Shiraz, Iran, Jan **2014**.

3. "Experimental determination of diffusion parameters of Azo dye in nematic liquid crystal", *The 1st national conference on optics and laser engineering*, Malek Ashtar University, Isfahan, Iran, May **2009**.

4. "Experimental study of the polarization dependence of the absorption coefficients in azo dye doped liquid crystal", *15th Iranian optics and photonics conference,* University of Isfahan, Isfahan, Iran, Jan **2009**.

5."Experimental investigations on dynamic behavior of holographic grating in Azo dye doped nematic liquid crystal", *Iranian annual physics conference*, University of Kashan, Kashan, Iran, Aug **2008**.

6. "Dynamic behavior investigation of refractive index grating in a new nematic liquid crystal doped with azo dye", *SPIE Europe Optics + Optoelectronics conference*, 20-23April **2009** (Abstract).

• Teaching Experience

- Lecturer for Basic and Specialized Courses of Physics, Bonab University, Bonab, Iran, Sep 2015- Present
- Lecturer for Basic Courses of Physics, Payamnoor University, Tabriz, Iran, Sep 2012-Present
- Lecturer for Basic and Specialized Courses of Physics, Payamnoor University, Marand, Iran, Feb 2010-Sep 2012
- Lecturer for Basic Courses of Physics, Payamnoor University, Azarshahr, Iran, Feb 2010-Sep 2010

• Linguistic Skills

Azeri (Native), Persian (Native), English (Advanced)