Curriculum Vitae
Sara Tofighi

Research Interest:

Quantum communication, Optical fiber sensors and devices, Quantum imaging and Quantum lithography, Optical nano-lithography, Quantum optics, Visible light communication (Li-Fi), Photonic crystals, Optical Holography

Personal Information

First Name: Sara **Last Name:** Tofighi **Gender:** **Female** **Date of Birth:** 9/06/1985 **Location:** Tehran, Iran

Nationality: Iranian **Email:** s.tofighi@itrc.a.ir

Current Position(s):

- **Optical communication Group, Dept. of Communication Technology, Iran Telecommunication research center**

Educations

Ph.D. Student (Started 24/09/2009, Finished 04/02/2014)

Sharif University of Technology, Tehran, Iran

Ph.D. in Physics, 2009-2014, **Total (Current) GPA:** (19.58/20)

Research Field: Optics & photonics

Thesis Title: Visible light saturable absorber near-field nanolithography

Supervisor: Prof. A. R. Bahrampour

M.Sc. (Started 24/09/2007, Finished 20/09/2009)

Tehran University, Tehran, Iran

M.Sc. in Physics, 2007-2009, **Total (Current) GPA:** (19.05/20)

Research Field: Gravity & Astronomy

Thesis Title: Investigation of light state effect on the precision of gravitational wave detection with interferometry method in LIGO and VIRGO detectors

Thesis Grade: 19.5

Supervisor: Dr. F. Shojai Baghini and Prof. A. R. Bahrampour

B.Sc. (Started 24/09/2003, Finished at 22/06/2007)

Sharif University of Technology, Tehran, Iran

B.Sc. in Physics, 2003-2007, **Total GPA:** (17.94 / 20)

Research Field: Physics

Scientific Activities

- **Postdoctoral Research Assistant ……..…..…….**2014-2015

Sharif University of Technology, Tehran, Iran
Project title: Distributed sensor for detection and localization of the oil pipeline leaks by fiber optics.
Project owner: 'Iranian Oil Pipeline and Tele-communication Company'.

- **Team leader of Sensor Networks group**……..…...….……2016-2017

Iran Telecommunication Research Center, Tehran, Iran
Project title: IOT roadmap

- **Researcher**…….……2016-2017

Iran Telecommunication Research Center, Tehran, Iran
Project title: 5G roadmap

- **Project manager**……..……..…….……2017-2018

Iran Telecommunication Research Center, Tehran, Iran
Project title: Improving the selected optical quantum communication protocols and proposing proper protocols for implementation in Iran.

- **Academic Project Supervisor (2nd)** ..…….…….…….…..Jan. 2016-now

Thesis title: Optimizing the distributed fiber sensorFereshteh Esmail Zadeh Noghani, **Ph.D** student of Sharif University of Technology.

Presentations

- S. Tofighi, S. Shakeri, Implementation of single photon phase gate with optomechanical system, The First National Conference and Workshop on Quantum Information and OpenQuantum systems, Tabriz, Iran, 2018.
- F. Farman**,** S. Tofighi, A.R. Bahrampour, Secure deterministic communication based on orbital angular momentum of light, The First National Conference and Workshop on Quantum Information and OpenQuantum systems, Tabriz, Iran, 2018.
- M. Bathaee, S. Tofighi, A.R. Bahrampour, The effect of thermal noise on one way coherent quantum key distribution protocol, The First National Conference and Workshop on Quantum Information and OpenQuantum systems, Tabriz, Iran, 2018.
- S. Shakeri**, S. Tofighi,** A dressed-state CNOT Gate via PT-symmetry Breaking in Non-Hermitian Optomechanical Cavity, international conference on Quantum Nonlinear Optics, Kuala Lumpur (2018).
- F. Farman, S. Tofighi, A. R. Bahrampour, "Ping-Pong protocol based on orbital angular momentum of light", International Workshop on Structured Light and Matter: Concept and Applications (ICTP), Zanjan, Iran (2016).
- F. Esmaeil-zadeh, S. Tofighi, A. R. Bahrampour, *'Border Protection Bragg Fiber Sensor'*, 23th Iranian Conference on optics and photonics and 9th Iranian conference on engineering photonics, Tehran, Iran (2016).
- S. Tofighi, N. phishbin, A. R. Bahrampour, "*Distributed Fiber Sensor With mm Spatial Resolution*", 22th Iranian Conference on optics and photonics and 8th Iranian conference on engineering photonics, Yazd, Iran (2015)
- S. Tofighi, M. Afsary and A. R. Bahrampour, *"Saturable absorber nanolithography by vectorial nonparaxial Gaussian beam "*, third Mediterranean Photonics Conference, Trani, Italy (2014).
- S. Tofighi, M. Afsary, F. Farman, A. R. Bahrampour, *" A vectorial nonparaxial model for propagation of Gaussian field in saturable absorber medium: An approach towards nanolithography"*, 20th Iranian Conference on optics and photonics and 6th Iranian conference on engineering photonics, Shiraz (2014).
- F. Farman, S.S. Zakeri, S. Tofighi and A. R. Bahrampour, *"Heat transfer between micro mechanical*

resonators through optical channels", 20th Iranian Conference on optics and photonics and 6th Iranian conference on engineering photonics, Shiraz, Iran (2014).

- S.Tofighi, F. Shojaee and A.R. Bahrampour, *"Investigation of light state effect on the quantum noise of gravitational wave interferometric detector LIGO"*, physics conference of Iran, Isfahan (2009).
- F. Esmail Zadeh Noghani, S. Tofighi, and A. R. Bahrampour, *"Border Protection Bragg Fiber Sensor"*, 23rd Iranian Conference on Optics and Photonics (ICOP 2017), Tarbiat Modares Univesity, Tehran (2017).

Publications

- M. Ahmadi, A. Amjadi, A. R. Bahrampour, H. Ravanbod, **S. Tofighi**, *"Acoustical gas-leak detection in the presence of multiple reflections, dispersion, and uncorrelated noise using optimized residual complexity"* , Journal of the Acoustical Society of America 140(3):1817-1827 (2016).

- **S. Tofighi**, A. bahrampour, N. Pishbin and A. R. Bahrampour, third chapter of *" Optical Fiber Sensors: Advanced Techniques and Applications" entiteled " Interferometric Fiber Optics Sensors"*, CRC Press, pp.37-78 (2014).

- **S. Tofighi**, A. R. Bahrampour, *"Analysis of transient response and instability in fiber ring resonators containing an erbium-doped fiber amplifier and quantum dot-doped fiber saturable absorber"*, J. Opt. Soc. Am. B **30**, No. 12 (2013).

- **S. Tofighi**, A. R. Bahrampour, *"All-optical controlled switching in centrally coupled circular array of nonlinear optical fibers"*, APPLIED OPTICS **52**, No. 25 (2013).

- **S. Tofighi**, A. R. Bahrampour, *"Theoretical model for visible light saturable absorber nanolithography"* J. Opt. **14** (2012) 125004.

- **S. Tofighi**, S. Safari Farshemi, A. R. Bahrampour, B. Sajjad, *"Optical bistability in fiber ring resonator containing an Erbium doped fiber amplifier and quantum dot doped fiber saturable absorber"* Applied Optics **51**, Issue 29 (2012) 7016.

- A. R. Bahrampour, M. Bathaee, **S. Tofighi**, A. Bahrampour, F. Farman, M. Vali, *"Polarization maintaining optical fiber multi-intruder sensor"*, Optics and Laser Technology, **44** (2012) 2026-2031.

- A. R. Bahrampour, **S. Tofighi**, M. Bathaee, F. Farman, *First chapter of "Interferometry - Research and Applications in Science and Technology"* entitled *"Optical Fiber Interferometers and Their Applications"*, Intech publisher (2012) ISBN 978-953-51-0403-2.

- A. R. Bahrampour, M. Vahedi, M. Abdi, R. Ghobadi, M. Golshani , **S. Tofighi** and B. Parvin, *"A theoretical multi-reflection method for analysis of opto-mechanical behavior of the Fabry-Perot cavity with moving boundry condition"*, Optics Communication, **284** (2011) 4789-4794.

- **S.Tofighi**, A.R. Bahrampour and F. Shojaee, *"Optimum quantum state of light for gravitational wave interferometry"*, Optics Communication, **283** (2010) 1012-1016.

Teaching Experiences

Example:

- Quantum Networks (PHD)……..……..Sep 2017- Jan2018

Islamic Azad University, Tehran, Iran.

- Quantum mechanics I & II (Bachelor of Science)……..……..Sep 2015-Jan 2016

Farhangian University, Tehran, Iran.

- Teacher assistance in physics IV, quantum optics I, quantum mechanics II, electrodynamics, general physics lab I, II…….....…….……2009-2014

Sharif University of Technology, Tehran, Iran.

Computer Skills

Scientific Software Tools: (e.g. MATLAB, Mathematica)
Programming Languages: Pascal

Languages

Persian Native

English Fluent

Honors and Awards:

- Shahid Chamran award, National elite foundation (Nov. 2014)

References

- Dr. A.R. Bahrampour, Professor, Sharif Uni. of Tech., Bahrampour@sharif.edu