



## Curriculum Vitae

**Saifollah Rasouli,**  
**Doctor of Philosophy in Physics,**  
**Professor at the IASBS**

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**<https://scholar.google.com/citations?user=-YvcPaIAAAAJ&hl=en>**

### Personal Information

Family name: RASOULI

First name: Saifollah

Sex: Male

Married with two children: Amir Mohammad and Ayda

**Place of Birth (City and Country):** Zanjan, Iran

**Nationality:** Iranian

**Date of Birth:** 24 October 1971

### Full address of Permanent Institution:

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### Education

- **Ph. D.** in Physics (Optics) **2003-2007**, Institute for Advanced Studies in Basic Sciences (IASBS), Iran.
- **M. Sc** in Physics (Optics) **1995-1997**, Institute for Advanced Studies in Basic Sciences (IASBS), Iran.
- **B. Sc** in Applied Physics (Condensed Matter) **1990-1994**, Shahid Beheshti University, Tehran, Iran.

## Work Experience

- **From 11/11/2019**, Full Professor of Physics, Department of Physics, Institute for Advanced Studies in Basic Sciences (IASBS), Zanjan, Iran.
- **February 2012 - November 2019**, Associate Professor of Physics, Department of Physics, Institute for Advanced Studies in Basic Sciences (IASBS), Zanjan, Iran.
- **March 2009 - February 2012**, Assistant Professor of Physics, Department of Physics, Institute for Advanced Studies in Basic Sciences (IASBS), Zanjan, Iran.
- **April 2007 - March 2009**, Post-Doctoral Fellow, Institute for Advanced Studies in Basic Sciences (IASBS) Zanjan, Iran

## Awards

- Senior Associate of the [International Centre for Theoretical Physics \(ICTP\)](#) from 2018 to 2023
- Recipient of the [ICO/ICTP Gallieno Denardo Award](#) in 2009 for significant contributions in optics and photonics in developing countries<sup>2</sup>
- Regular Associate of the ICTP from 2010 to 2015
- Winner of the [Best Oral Presentation Award](#) in 2013 from the [Optical Society of America \(OSA\)](#)
- Distinguished Researcher in Zanjan Province, Iran, in 2012 and 2018
- Senior Member of the [Society of Photo-Optical Instrumentation Engineers \(SPIE\)](#) since 2013

## My Research Interest

- Diffraction
- Fourier optics
- Interferometry
- Singular optics
- Psychophysics
- Moiré Techniques
- Nondiffracting beams
- Theoretical and experimental physical Optics
- Vision, illusory motions, and perception of the human main emotions
- Atmospheric Turbulence
- Thermal lensing studies
- Wave-front Sensing
- Vibration Analysis
- Optical Metrology
- 3D displays

## My recent research mainly focuses on the following topics

**1- The mutual influence of the moiré technique and singular optics.** This includes formulating and characterizing the moiré patterns of various classes of gratings that have topological defects or slowly varying parameters, and exploring the potential applications of the moiré technique in singular optics.

**2- The near and far-field diffractions from 2D periodic or almost-periodic structures that are orthogonal or skew-angle, have or lack topological defects, and are separable or non-separable in different coordinate systems. This also involves studying their possible applications.**

**3- The diffraction from radial structures and the demonstration of some remarkable features of this phenomenon,** such as the transverse plane Talbot carpet, the curved boundaries between the optical regimes, the Arago-Poisson-like effect on the diffraction of vortex beams from radial gratings, the generation of spatially asymmetric, radial carpet, petal-like, and twisted-intensity ring-like vortex beams, and the diffraction-based rainbow.

**4- The optical measurements in interdisciplinary fields of Soft Matter and Fluid Mechanics.** This encompasses determining the surface profile of a forced and stationary water vortex using fringe reflectometry, measuring the thin film thickness, examining the spreading of a non-viscous drop on a viscous substrate, and so on.

**5- The design and construction of new devices for optical measurements/detections.** This includes a long-range and highly precise displacement sensor, new methods for laser disk vibration characterization, an improved moiré based seismometer, a meteorological visiometer, and a device for demonstrating turbulence.

**6- The characterization of the display monitors and imaging systems such as CCD cameras by investigating the unwanted moiré patterns produced in the imaging/displaying of a given periodic pattern by these devices.**

**7- The study of the human vision perception, illusory motions, and the perception of the human main emotions.** I have recently been involved with the illusory motions and some interdisciplinary researches in psychology.

**8- The proposal of new methods for thin-disk lasers characterization and optimization.**

**9- The study of the materials thermal nonlinearity by the thermal lensing effect**

**Our Laboratory Members (I am the leader of a laboratory at the IASBS. We conduct research on Diffraction, Fourier Optics, Interferometry, Moiré Technique, Singular Optics, Optical Metrology, and some interdisciplinary topics):**

**Prof. Saifollah Rasouli (Head)**

**Dr. Pouria Amiri (Postdoctoral Fellow)**

**Dr. Reza Shirsavar (Postdoctoral Fellow, supported by the Iran National Elite Foundation)**

**Samaneh Khoshkhati (Ph.D. Student)**

**Somaieh Fathollahzadeh (Ph.D. Student)**

**Pardis Yazdani Moghadam (Continues Ph.D. Student)**

**Mohsen Samadzadeh Bonab (Ph.D. Student)**

**Mohaddeseh Mohammadi Masouleh (Continues Ph.D. Student)**

**Mozhgan Hashemi (Continues Ph.D. Student)**

**Hossein Mohammadi (Ph.D. Student)**

**Mohammad Reza Asadipour (Ph.D. Student)**

**Yasin Ebrahimi (Continues Ph.D. Student)**

**Mohammad Reza Vahedi Anvar (Ph.D. Student)**

**Zahra Madankan (Ph.D. Student)**

**Previous part-time or postdoctoral researchers in my Group:**

**Dr. Davud Hebri (Graduated Ph.D. Student & Part Time Researcher until April 2023)**

**Dr. Ali Mohamad Khazaei (Postdoctoral fellow), was supported by the Iran National Science Foundation (INSF), under grant No. 99002408 (April 2021- March 2023)**

**Dr. Peyman Soltani (Postdoctoral fellow), was supported by the Ministry of Science, Research and Technology, MSRT (June. 2021- August 2022)**

**Dr. Mohammad Yeganeh (Postdoctoral fellow), was supported by the Iran National Science Foundation (INSF), under grant No. 95001286 (Feb. 2017- August 2018)**

**Dr. Saeed Hamzeloui (Postdoctoral fellow), was supported by the Iran National Elite Foundation, under grant No. 15386 (November 2017- March 2019)**

**Highlighted Researches**

- The paper “**S. Rasouli, A. Gholami, P. Amiri, V. V. Kotlyar, and A. A. Kovalev, J. Opt. Soc. Am. A 39, 1246-1255 (2022)**” was announced as one of the **Popular Papers on Holography, Diffraction and Gratings by JOSA A (12/15/2022, 01/15/2023)**.
- The paper “**P. Amiri, A. M. Dezfouli, and S. Rasouli, J. Opt. Soc. Am. B 37(9) 2668-2677 (2020)**” was announced as one of the **Top downloads from October and from December 2020 from JOSA B (11/21/2020, 01/22/2021)**.
- A Spotlight Summary by Juan P. Torres was written for the paper “**P. Amiri, A. M. Dezfouli, and S. Rasouli, J. Opt. Soc. Am. B 37(9) 2668-2677 (2020)**” and it was highlighted in **Spotlight on Optics** in October 2020.  
See: **Spotlight on Optics: Highlighted Articles from OSA Journals**  
<https://www.osapublishing.org/spotlight/summary.cfm?id=434488>
- The paper “**D. Hebri, S. Rasouli, M. Yeganeh, J. Opt. Soc. Am. B 35(4), 724-730 (2018)**” was selected as one of **Noteworthy Topological Photonics Papers from JOSA B (07/30/2020)**.
- The paper “**D. Hebri, S. Rasouli, and A. M. Dezfouli, J. Opt. Soc. Am. A 36(5) 839-852 (2019)**” was announced as one of the **Recent Top Downloads from JOSA A (05/12/2020)**.
- The paper “**S. Rasouli, A. M. Khazaei, and D. Hebri, J. Opt. Soc. Am. A 35 (1), 55-64 (2018)**” was announced as one of the **JOSA A’s 15 Most Cited Recent Papers (02/20/2020)**.
- An intensity pattern named as “Diffraction-based rainbow” was selected as **the Image of the Week**, 11 Nov 2019, by the OPN ( **Optics & Photonics News**, OSA- The Optical Society):  
**See** [https://www.osa-opn.org/home/gallery/image\\_of\\_the\\_week/2019/19-11-11/](https://www.osa-opn.org/home/gallery/image_of_the_week/2019/19-11-11/)
- An intensity pattern of a Radial Carpet Beam was selected as **the Image of the Week**, 21 Oct 2019, by the OPN ( **Optics & Photonics News**, OSA- The Optical Society):  
**See** [https://www.osa-opn.org/home/gallery/image\\_of\\_the\\_week/2019/19-10-21/](https://www.osa-opn.org/home/gallery/image_of_the_week/2019/19-10-21/)

- A figure of JOSA A **36**(5), 800-808 (2019) is selected by the journal editor to appear as the “**current issue webpage figure**”.  
See <https://www.osapublishing.org/josaa/issue.cfm?volume=36&issue=5>
- The paper “**S. Rasouli, A. M. Khazaei, and D. Hebri, J. Opt. Soc. Am. A 35 (1), 55-64, 2018**” was selected as a one of the ten highly downloaded papers from J. Opt. Soc. Am. A in 2018.  
<https://www.osapublishing.org/josaa/abstract.cfm?uri=josaa-35-1-55&origin=search>
- Based on aesthetics of the presented “**optical carpet patterns**” in Phys. Rev. A 97, 033844 (2018) a figure of the paper is selected for “**Kaleidoscopes for March 2018**”.  
See <https://journals.aps.org/pr/kaleidoscope/pr/97/3/033844> and  
<https://journals.aps.org/pr/abstract/10.1103/PhysRevA.97.033844>
- A news entitled “**Generating a new class of beams using diffraction from radial gratings**” is released by the Physical Society of Iran (PSI).  
See [http://psi.ir/news2\\_fa.asp?stype=news&id=2477](http://psi.ir/news2_fa.asp?stype=news&id=2477)
- A figure of JOSA A 34 (12), 2145-2156 (2017) is selected by the journal editor to appear as the “**current issue webpage figure**”.  
See <https://www.osapublishing.org/josaa/issue.cfm?volume=34&issue=12>
- **Iranian wins 2009 Gallieno Denardo prize**, The 2009 Gallieno Denardo prize winner has characterized atmospheric turbulence using Moiré techniques.  
See <http://e-ico.org/node/40> and <http://e-ico.org/sites/default/files/pdfs/ICONewsletterApr2009.pdf>
- **ICO/ICTP Gallieno Denardo Award Winner 2009**  
See <https://www.ictp.it/about-ictp/prizes-awards/icoictp-gallieno-denardo-award/winners/icoictp-gallieno-denardo-award-winner-2009.aspx>  
[http://cat.ictp.it/F?func=find-b&find\\_code=WAP&request=Rasouli&adjacent=N&find\\_code=WRD&request=ICO&sort\\_option=03---A&filter\\_code\\_4=WFM&filter\\_request\\_4=VM](http://cat.ictp.it/F?func=find-b&find_code=WAP&request=Rasouli&adjacent=N&find_code=WRD&request=ICO&sort_option=03---A&filter_code_4=WFM&filter_request_4=VM)  
[http://cat.ictp.it/F?func=find-b&find\\_code=WAP&request=Rasouli&adjacent=N&find\\_code=WRD&request=ICO&sort\\_option=03---A&filter\\_code\\_4=WFM&filter\\_request\\_4=CL](http://cat.ictp.it/F?func=find-b&find_code=WAP&request=Rasouli&adjacent=N&find_code=WRD&request=ICO&sort_option=03---A&filter_code_4=WFM&filter_request_4=CL)
- A newspaper entitled “**Moiré technique improves the measurement of atmospheric turbulence parameters**” is published by the SPIE newsroom.  
See <http://spie.org/newsroom/0569-moir%C3%A9-technique-improves-the-measurement-of-atmospheric-turbulence-parameters?SSO=1>

## Professional and Academic Experience

- **Full Professor of Physics**, Institute for Advanced Studies in Basic Sciences (IASBS), from November 2019.
- **Associate Professor of Physics**, Institute for Advanced Studies in Basic Sciences (IASBS), from March 2012 to November 2019.
- **Assistant Professor of Physics**, Institute for Advanced Studies in Basic Sciences (IASBS), from March 2009 to March 2012.
- **Postdoctoral Fellowship**, Institute for Advanced Studies in Basic Sciences (IASBS), April 2007 to March 2009.
- **Research Assistant**, Institute for Advanced Studies in Basic Sciences (IASBS), Feb. 1998 to Oct. 2003.
- **Optics Lab. Assistant**, Institute for Advanced Studies in Basic Sciences (IASBS), Feb. 1998 to April 2007.

- **Instructor and Lecturer**, Zanjan Islamic Azad University, Feb. 1998 to April 2007.
- Teaching at the University of Zanjan and at the Zanjan Payame - Noor University (long time ago)

## Responsibilities

- **Head of the Elites Foundation of Zanjan Province**, from February 2020.
- **Member of Academic Promotion Committee of the IASBS**, from 2022
- **Member of Academic Promotion Committee of the University of Zanjan**, from April 2023
- **Local Organizer of the International Year of Light and Light-based Technologies (IYL 2015)** activities at IASBS
- **Member of Recruitment Committee**, Department of Physics, IASBS, from July 2014-continues.
- **Social and Cultural Deputy** of the Institute for Advanced Studies in Basic Sciences (IASBS), from June 2012 to February 2014.
- **Acting Deputy Chancellor for Administration and Finance**, IASBS, January–February 2013.
- **Head of Student Affairs** of the Institute for Advanced Studies in Basic Sciences (IASBS), from October 2010 to June 2012.
- **Advisor to the Director** of the Institute for Advanced Studies in Basic Sciences (IASBS) on Veterans and Martyrs Affairs, from October 2010 to February 2014.
- Established the **DIMS Lab** at IASBS for studying diffraction, interferometry, moiré technique, and singular optics
- Collaborated in developing and expanding the Research Optics Laboratories at IASBS
- Collaborated in establishing the General Optics Laboratory at IASBS
- Member of the committee for the Iranian National Standards **ISIRI 6100** and **ISIRI 7086**

## Editorial Board Member of Journal of Holography Applications in Physics Topical Editor of International Journal of Optics and Photonics (IJOP)

## Publications in Peer-Reviewed Journals

- 1- **S. Rasouli**, M. Bagheri, J. J. Niemela, "[Robustness of highly complex radial carpet beams in turbulent atmospheres](#)," *Scientific Reports* **14**.1, 18419 (2024).
- 2- **S. Rasouli** and Samaneh Khoshkhatti, "[Single-frame double-grating interferometry with two inherent-phase-shifted interferograms](#)," *Opt. Express* **32**, 22429-22447 (2024).
- 3- Mohsen Samadzadeh, **S. Rasouli**, Davud Hebri, and Sergey A. Ponomarenko, "[Multiplying vortex beams by diffraction from almost periodic structures: Theory and experiment](#)," *Applied Physics Letters* **124**, no. 20 (2024).
- 4- H Mehrabzadeh, H Khoshdel, Z Amini Sabegh, M Mahmoudi, **S Rasouli**, "[Voltage-controlled two-dimensional Fresnel diffraction pattern in quantum dot molecules](#)," *Scientific Reports* **14**, 5815 (2024).
- 5- **S. Rasouli** and S. Fathollahzade, "[Power amplification in the core area of radial carpet beams](#)," *J. Opt. Soc. Am. B* **41** (3), 728-737 (2024).



- 6- D Hebri, **S Rasouli**, S Ponomarenko, "[Fourier reciprocity between generalized elliptical Gaussian and elegant elliptical Hermite-Gaussian beams carrying orbital angular momenta](#)" J. Opt. Soc. Am. A **41** (2), 338-348 (2024).
- 7- E. Mohammadi Razi, **S. Rasouli**, J.J. Niemela, "[Study of convective air turbulence based on the probability distribution function of angle of arrival fluctuations.](#)" Optics & Laser Technology **171**, 110437 (1-11), 2024.
- 8- P. Yazdani Moghadam, **S. Rasouli**, F. Hajizadeh, and D. Hebri, "[Three-dimensional optical multiple trapping using pure amplitude octagonal almost periodic structures.](#)" Optics Express **31** (26), 43490-43505, 2023.
- 9- **S. Rasouli**, Pouria Amiri, D. Hebri, "Transformation of Laguerre-Gaussian beams into 1D array of Hermite-Gaussian modes under the Talbot effect," Optics Express **31** (13), 20683-20695, 2023.
- 10- R. Azizkhani, D. Hebri, and **S. Rasouli**, "Gaussian beam diffraction from radial structures: detailed study on the diffraction from sinusoidal amplitude radial gratings," Optics Express **31** (13), 20665-20682, 2023.
- 11- A. M. Khazaei, D. Hebri, **S. Rasouli**, "Theory and generation of heterogeneous 2D arrays of optical vortices by using 2D fork-shaped gratings: topological charge and power sharing management," Optics Express **31** (10), 16361-16379, 2023.
- 12- E. Mohammadi Razi, **S Rasouli**, "Effects of temperature gradient and beam path height from heat source on phase structure and mutual coherence functions of a light beam propagating through convective air turbulence," Optics & Laser Technology **161**, 109174 (1-7), 2023.
- 13- M. R. Zarei, D. Hebri and **S. Rasouli**, "1D spatially chirped periodic structures: managing their spatial spectrum, and investigating their near-field diffraction," J. Opt. Soc. Am. A **39** (12), 2354-2375 (2022).
- 14- E. Mohammadi Razi, Reza Shokoohi, **S. Rasouli**, "Study of anisotropy of convective optical underwater turbulence and the effect of the mean water temperature in the presence of a varying temperature gradient on it," Laser Physics **32** (9), 095602 (9pp), 2022.
- 15- P. Soltani, **S. Rasouli**, A. M. Khazaei, "Ultra-high-dynamic range wavefront sensor based on absolute double-slit interferometry," Optics Letters **47**, 4516-4519, 2022.
- 16- D. Hebri and **S. Rasouli**, "Theoretical study on the diffraction-based generation of 2D orthogonal lattice of optical beams: physical bases and application for a vortex beam multiplication," J. Opt. Soc. Am. A **39**, 1694-1711 (2022).
- 17- **S. Rasouli**, E. Mohammadi Razi, J. J. Niemela, "Investigation of the anisotropy and scaling of the phase structure function of a spatially coherent light beam propagating through convective air turbulence," J. Opt. Soc. Am. A **39** (9), 1641-1649 (2022).
- 18- **S. Rasouli**, A. Gholami, P. Amiri, V. V. Kotlyar, and A. A. Kovalev, "Propagation of a multi-vortex beam: far-field diffraction of a Gaussian beam from a multi-fork phase grating," J. Opt. Soc. Am. A **39**, 1246-1255 (2022).
- 19- E. Mohammadi Razi, M. Behbodi, **S. Rasouli**, "A study on angle of arrival fluctuations in a temperature-, salinity- and sweetness-induced underwater optical turbulence," Waves in Random and Complex Media **32** (4), 1-14 (2022).
- 20- M. Dashti, **S. Rasouli**, "Implementation of a Wavefront-Sensing Algorithm with Two-Channel Moiré Deflectometry and Matlab Graphic User Interface," Optoelectronics, Instrumentation and Data Processing **57** (6), 683–694 (2022).
- 21- **S. Rasouli**, M. Bagheri, "Resilience of radial carpet beams under propagation through indoor convective air turbulence," Journal of Optics **24** (7), 075602 (1-14) (2022).
- 22- V.V. Kotlyar, A.A. Kovalev, S.S. Stafeev, A.G. Nalimov, **S. Rasouli**, "Tightly focusing vector beams containing V-point polarization singularities," Optics & Laser Technology **145**, 107479, 2022.
- 23- V. V. Kotlyar, A. A. Kovalev, P. Amiri, P. Soltani, and **S. Rasouli**, "Topological charge of two parallel Laguerre-Gaussian beams," Opt. Express **29**, 42962-42977 (2021).
- 24- **S. Rasouli**, S. Fathollahzade, P. Amiri, "Simple, efficient and reliable characterization of Laguerre-Gaussian beams with non-zero radial indices in diffraction from an amplitude parabolic-line linear grating," Optics Express **29** (19), 29661-29675, 2021.
- 25- E. Mohammadi Razi, **S. Rasouli**, M. Dashti, and J. J. Niemela. "A high-resolution wavefront sensing method to investigate the annular Zernike polynomials behaviour in the indoor

- convective air turbulence in the presence of a 2D temperature gradient." *Journal of Modern Optics* **68**(18), 994-1001, 2021.
- 26- **S. Rasouli**, Pouria Amiri, Victor V. Kotlyar, and Alexey A. Kovalev, "Characterization of a pair of superposed vortex beams having different winding numbers via diffraction from a quadratic curved-line grating," *J. Opt. Soc. Am. B* **38**, 2267-2276 (2021)
  - 27- Babak Azizi, Zahra Amini Sabegh, Mohammad Mahmoudi, and **S. Rasouli**, "Tunneling-induced Talbot effect," *Scientific Reports* **11**, 6827 (1-14), 2021.
  - 28- M. H. Daemi and **S. Rasouli**, "Investigating the dynamic behavior of thermal distortions of the wavefront in a high-power thin-disk laser using the moiré technique," *Optics Letters* **45** (16), 4567-4570, 2020.
  - 29- P. Amiri, A. M. Dezfouli, and **S. Rasouli**, "Efficient characterization of optical vortices via diffraction from parabolic-line linear gratings," *Journal of the Optical Society of America B* **37** (8), 2668-2677, 2020.
  - 30- **S. Rasouli** and P. Amiri, "Adjustable amplitude-phase hybrid gratings: intensity-sharing management between diffraction orders," *OSA Continuum* **3** (8), 2086-2095, 2020.
  - 31- J. Bayat, F. Hajizadeh, A., M. Khazaei, and **S. Rasouli**, "Gear-like rotatable optical trapping with radial carpet beams," *Scientific Reports* **10**, 11721, 2020.
  - 32- **S Rasouli** and M. H. Daemi, "Rotation-sensitive and direction-resolved homodyne laser-Doppler vibrometry method for simultaneous measurement of rotational and translational vibrations of a rigid object using a 1D array detector," *Optics Express* **28** (6), 8658-8667, 2020.
  - 33- M. Panahi, R. Shomali, M. Mollabashi, and **S. Rasouli**, "Atmospheric coherence time measurement by four-aperture DIMM defocus velocity technique," *Applied Optics* **58**(31), 8673-8679, 2019.
  - 34- M. H. Daemi and **S. Rasouli**, "Direction-resolved homodyne laser-Doppler vibrometry by analyzing space-time fringes created by the successive 1D intensity profiles of the interference fringes," *Optics Letters* **44** (23), 5824-5827, 2019.
  - 35- E. Mohammadi Razi and **S. Rasouli**, "Impacts of source temperature and distance on the statistical behavior of convective air turbulence," *Applied Physics B* **125**, 185 (1-10), 2019.
  - 36- D. Hebri, M. Bagheri, and **S. Rasouli**, "Talbot effect of azimuthally periodic Bessel-based structures," *Opt. Lett.* **44**(17), 2019.
  - 37- **S. Rasouli** and A. M. Khazaei, "An azimuthally-modified linear phase grating: Generation of varied radial carpet beams over different diffraction orders with controlled intensity sharing among the generated beams," *Scientific Reports* **9**, 12472 (1-12), 2019.
  - 38- D. Abdollahpour, M. Lotfollahi Sheikhdarabad, M. Yeganeh, and **S. Rasouli**, "Generation and characterization of adjustable pure third-order spatial phase by tuning optical aberrations," *Journal of Optics* **21**(8), 085602, 2019.
  - 39- **S. Rasouli**, S. Hamzeloui, and D. Hebri, "Colorful radial Talbot carpet at the transverse plane", *Optics Express* **27**(13) 17435-17448, 2019.
  - 40- D. Hebri, **S. Rasouli**, and A. M. Dezfouli, "Theory of diffraction of vortex beams from structured apertures and generation of elegant elliptical vortex Hermite-Gaussian beams," *J. Opt. Soc. Am. A* **36**, 839-852, 2019.
  - 41- **S. Rasouli** and D. Hebri, "Theory of diffraction of vortex beams from 2D orthogonal periodic structures and Talbot self-healing under vortex beam illumination," *J. Opt. Soc. Am. A* **36**, 800-808, 2019.
  - 42- V Abbasian, **S Rasouli**, AR Moradi, "Microsphere-assisted self-referencing digital holographic microscopy in transmission mode," *Journal of Optics* **21**(4), 045301, 2019.
  - 43- D. Hebri and **S. Rasouli**, "Diffraction from two-dimensional orthogonal nonseparable periodic structures: Talbot distance dependence on the number theoretic properties of the structures," *J. Opt. Soc. Am. A* **36**, 253-263, 2019.
  - 44- M. Yeganeh and **S. Rasouli**, "Moiré fringes of higher-order harmonics versus higher-order moiré patterns," *Applied Optics* **57**(33) 9777-9788, 2018.
  - 45- **S. Rasouli**, M. Shahmohammadi, "A portable and long-range displacement and vibration sensor that chases moving moiré fringes using the three-point intensity detection method," *OSA Continuum* **1**(3), 1012-1025, 2018.
  - 46- D. Hebri and **S. Rasouli**, "Combined half-integer Bessel-like beams: A set of solutions of the wave equation," *Physical Review A* **98** (4), 043826 (11 pages), 2018.



- 47- **S. Rasouli**, F. Sakha, and M. Yeganeh, "Infinite-mode double-grating interferometer for investigating thermal-lens-acting fluid dynamics," *Meas. Sci. Technol.* **29**, 085201 (1-10), 2018.
- 48- **S. Rasouli**, A. M. Khazaei, and D. Hebri, "Radial carpet beams: A class of nondiffracting, accelerating, and self-healing beams," *Physical Review A* **97**, 003844 (14 pages), 2018.
- 49- **S. Rasouli**, F. Sakha, A. G. Mojarrad, S. Zakavi, "Thermal nonlinear optical response of meso-tetraphenylporphyrin under aggregation conditions versus that in the absence of aggregation", *Journal of Modern Optics* **65** (8), 1009–1017, 2018.
- 50- D. Hebri, **S. Rasouli**, and M. Yeganeh, "Intensity based measuring of the topological charge alteration by the diffraction of vortex beams from amplitude sinusoidal radial gratings," *Journal of the Optical Society of America B (JOSA B)* **35**, 724-730, 2018.
- 51- M. H. Daemi and **S. Rasouli**, "Fringe chasing by three-point spatial phase shifting for discrimination of the motion direction in the long-range homodyne laser Doppler vibrometry", *Optics & Laser Technology* **103**, 387-395, 2018.
- 52- **S. Rasouli**, A. M. Khazaei, and D. Hebri, "Talbot carpet at the transverse plane produced in the diffraction of plane wave from amplitude radial gratings," *Journal of the Optical Society of America A (JOSA A)* **35**, 55-64, 2018.
- 53- **S. Rasouli** and D. Hebri, "Contrast enhanced quarter-Talbot images," *Journal of the Optical Society of America A (JOSA A)* **34**(12), 2145-2156, 2017.
- 54- **S. Rasouli** and M. Yeganeh, "Moiré patterns of curved lines quasi-periodic structures," *Journal of the Optical Society of America A (JOSA A)* **34**(10), 1746- 1756, 2017.
- 55- **S. Rasouli**, D. Hebri, and A. M. Khazaei, "Investigation of various behaviors of near- and far-field diffractions from multiplicatively separable structures in the x and y directions, and a detailed study of the near-field diffraction patterns of 2D multiplicatively separable periodic structures using the contrast variation method," *Journal of Optics* **19** (9), 095601 (16 pages), 2017.
- 56- E. Mohammadi Razi, **S. Rasouli**, "Investigation of inhomogeneity and anisotropy in near ground layers of atmospheric air turbulence using image motion monitoring method," *Optics Communications* **383**, 255–259, 2017.
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## Publications under Review or in Progress

- 87- **S. Rasouli** and D. Hebri, "Conditional equality of the normalized OAM and topological charge of an optical vortex beam," to be submitted.
- 88- **S. Rasouli** and A. M. Khazaei "Second generation of radial carpet beams," to be submitted.
- 89- **S. Rasouli**, D. Hebri, and M. Bagheri, "Periodic light fields with halved intensity period in transvers plane and reduced Talbot distances," to be submitted.

## Book Chapter

- 1- **Saifollah Rasouli** (2012). *Atmospheric Turbulence Characterization and Wavefront Sensing by Means of the Moiré Deflectometry*, *Topics in Adaptive Optics*, Robert K. Tyson (Ed.), **ISBN: 978-953-307-949-3**, InTech,  
Available from: <https://www.intechopen.com/books/topics-in-adaptive-optics/atmospheric-turbulence-characterization-and-wavefront-sensing-by-means-of-the-moir-deflectometry>

## Abstracts of Presentations at International Conferences

- 1- **S. Rasouli**, "Diffraction from periodic and almost periodic structures, Talbot effect, and beam shaping," 4th International Conference on Light and Light-based Technologies (ICLLT) Gazi University, Ankara, Türkiye, May 16-18, 2024 (As an **invited speaker**).
- 1- Z. Rasouli, **S. Rasouli**, J. Salehi, "Comparing Illusory Movement Perception in Dyslexic and Typically Developing Children," 4th International Conference on Light and Light-based Technologies (ICLLT) Gazi University, Ankara, Türkiye, May 16-18, 2024.
- 2- M. Hashemi, **S. Rasouli**, "Polarimetric Analysis of Whitefly Larvae on Pomegranate Leaves via Mueller Matrix Imaging," 4th International Conference on Light and Light-based Technologies (ICLLT) Gazi University, Ankara, Türkiye, May 16-18, 2024.
- 3- **Saifollah Rasouli**, "Fantastic Features of the Diffraction from Radial Structures," 4th Global Summit & Expo on Laser Optics & Photonics, April 15-16, 2019 | Dubai, UAE (As an **invited speaker**).
- 4- Davud Hebri and **Saifollah Rasouli**, "Diffraction from Octagonal Periodic Pure Amplitude Sinusoidal Structure," Progress in Electromagnetics Research Symposium, PIERS 2017 St Petersburg, 146.
- 5- Davud Hebri and **Saifollah Rasouli**, "Talbot Images of 2D Orthogonal Multiplicatively Separable Sawtooth and Triangular Gratings," Progress In Electromagnetics Research Symposium, PIERS 2017 St Petersburg, 146.
- 6- Y. Rajabi, M. Dashti, A. A. Panahi, and **S. Rasouli**, "Determination of time evolution of atmospheric refractive index structure constant  $C_n^2$  during 24 hours using a moiré deflectometer," ISTP 9th International Symposium on Tropospheric Profilin, L'Aquila, Italy, 3-7 September 2012.
- 7- Y. Rajabi and **S. Rasouli**, "Determination of the spectral response of color CCD using self-imaging phenomenon," Frontiers in Optics & Photonics: FOP-2012, Yerevan – Ashtarak, Armenia, 2 - 7 July, 2012.
- 8- **S. Rasouli**, M. D. Niry, Y. Rajabi, A. A. Panahi, and J. J. Niemela, "Observations of Anisotropy in Atmospheric Turbulence by Means of Moiré Deflectometry," The DFD11 Meeting of The American Physical Society (64th Annual Meeting Division of Fluid Dynamics), Baltimore, Maryland, USA, 20–22 November 2011.
- 9- F. Bayat, **S. Rasouli**, M. Mahmoudi, and S. Ghanbari, " Relativistic Formulation of Moiré Fringes for Moving Periodic Structures," Laser Physics 2011, Yerevan - Ashtarak, Armenia, 11-14 October 2011.
- 10- **S. Rasouli**, "A brief review of applications of moiré technique in nonlinear optics, monitors and imaging systems characterization, spectroscopy, atmospheric turbulence studies, and wave-front sensing," International Symposium OPTICS and its applications 5-9 September, 2011 Yerevan - Ashtarak, Armenia (**Invited speaker- Plenary Lecturer**).

- 11- **S. Rasouli**, H. Ghasemi, and H. R. Kholesifard, "Nonlinear refractive index measurement using moiré deflectometry in pump-probe configuration," The 5<sup>th</sup> (OSA) International Conference on Nanophotonics (ICNP'2011) Fudan University, Shanghai, China 22-26 May, 2011.
- 12- **S. Rasouli** and M. A. Charsooghi, "Soret effect study in thermal lens induced by a Gaussian laser beam in colloidal nanoparticles solution by moiré deflectometry," The 5<sup>th</sup> (OSA) International Conference on Nanophotonics (ICNP'2011) Fudan University, Shanghai, China 22-26 May, 2011.

### Papers or Presentations at Iranian Conferences

- 1- M. Mohammad M. and **S. Rasouli**, "Regular mathematical nature of the number of intermediate intensity spots of the radial carpet beams," Proceeding of the Annual Physics Conference of Iran, 2024.
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- 5- M. Hashemi, **S. Rasouli**, and P. Soltani, "Mueller matrix polar decomposition based investigation of an apple tree leaf," The Annual Physics Conference of Iran, 2023.
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- 8- A. Abdi, P. Soltani, M. Mohammadi Masouleh, and **S. Rasouli**, "Experimental Generation of the spatial asymmetric beams as a sub-family of the combined half-integer Bessel-like beams," Proceeding of 29th Iranian Conference on Optics and Photonics, 516-519, 2023.
- 9- **S. Rasouli**, P. Soltani, P. Amiri, "Design, fabrication, and characterization of a color Stokes imager," Proceeding of 28th Iranian Conference on Optics and Photonics, 46-49, 2022.
- 10- A. Gholami, **S. Rasouli**, A. M. Khazaei, "Investigating propagation of multiple optical vortices under a plane wave bed," Proceeding of 28th Iranian Conference on Optics and Photonics, 46-49, 2022.
- 11- F. Sakha, M. Yeganeh, **S. Rasouli**, "Phase extraction of quasi parallel interference fringes, single fringe and closed fringes using one-dimensional continuous wavelet transform and Hilbert transform," Proceeding of 28th Iranian Conference on Optics and Photonics, 46-49, 2022.
- 12- M. Bagheri and **S. Rasouli**, "Propagation of radial carpet beams through atmospheric turbulence," Proceeding of 27th Iranian Conference on Optics and Photonics, 1-4, 2021.
- 13- R. Azizkhani, D. Hebri, and **S. Rasouli**, "Diffraction of a Gaussian beam from an amplitude sinusoidal radial grating," Proceeding of the Annual Physics Conference of Iran, 1-4, 2020.
- 14- M. Bagheri and **S. Rasouli**, "Propagation of radial carpet beams through a convective air turbulence," Proceeding of the Annual Physics Conference of Iran, 1-4, 2020.
- 15- R. Azizkhani, D. Hebri, and **S. Rasouli**, "Diffraction of a Gaussian beam from 2D structures separable in polar coordinates," Proceeding of 26th Iranian Conference on Optics and Photonics, 1-4, February 3 and 4, 2020.
- 16- **S. Rasouli**, "Diffraction from structured apertures and structured light," The Iranian Annual Physics Conference 1398, August 2019, Tabriz (**As an invited Speaker**).
- 17- **S. Rasouli**, "Diffraction of optical vortices," 1<sup>th</sup> International Conference on Optoelectronics, Applied Optics, and Microelectronics, August 17-19, 2019, Ardabil-Namin (**As an invited Speaker**).



- 18- M. Yeganeh, **S. Rasouli**, D. Abdollahpour, and P. Salemi Yolghoonlou, "Effect of thermal nonlinearity inducing by the focused one-dimensional Airy beam on its propagation," Proceeding of the Annual Physics Conference of Iran, 152-155, 2018.
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- 30- M. H. Daemi and **S. Rasouli**, "Homodyne Vibrometry of the mirror of the thin disk laser using 3-point spatial phase shifting technique", Proceeding of 23th Iranian Conference on Optics and Photonics, January, 969-972, 2017.
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- 32- D. Hebri, **S. Rasouli**, and Ali Mohammad Khazaei, " Near and Far Field Diffractions from a Radial Grating Using Fresnel- Kirchhoff Integral and Concept of Hypothetical Aperture Function of the Grating", Proceeding of the Annual Physics Conference of Iran, 489-492, 2016.
- 33- M. Yeganeh, A. M. Khazaei, **S. Rasouli**, and N. Iliyat, "Construction of a q-plate for Generating Vortex Beam", Proceeding of 22th Iranian Conference on Optics and Photonics, January 2016.
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- 35- **S. Rasouli**, Z. Koochi, and M. Yeganeh, "Introducing some new patterns having illusory motions and interpretation of their reason", Proceeding of 22th Iranian Conference on Optics and Photonics, January 2016.

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- 37- M. Lotfollahi Sh., M. Yeganeh, **S. Rasouli**, and D. Abdollahpour, "Wavefront Measurement of Airy Beams Generated through Coma Aberration", Proceeding of 22th Iranian Conference on Optics and Photonics, January 2016.
- 38- M. Yeganeh and **S. Rasouli**, "Formulation of dynamical behavior of moiré patterns formed by superimposing of moving gratings consisting topological defects", Proceeding of the Annual Physics Conference of Iran, 822-825, 2015.
- 39- M. Yeganeh, **S. Rasouli**, and E. M. Razi, "Investigation of conservation of topological charge of vortex beam in propagation through indoor convective air turbulence", Proceeding of the Annual Physics Conference of Iran, 826-829, 2015.
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- 43- E. M. Razi, **S. Rasouli**, and M. Dashti, "Generation and investigation of Non-Kolmogrov convective air turbulence by the measurement of phase power spectrum of light beam propagating through it", Proceeding of 21th Iranian Conference on Optics and Photonics, January 2015.
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- 49- M. Beyad, A Darudi, and **S. Rasouli**, "Measurement of the pixel pitch and the spatial opening number of a digital camera chip using moiré technique", 2th National Electronic Conference on Physics Applications, University of Jahrom, March 2014.
- 50- E. Mohammady Razi, **S. Rasouli**, and M. Dashti, "Experimental study of vertical temperature gradients effect on the aberrations of wave front propagates through indoor convective air turbulence using two channel moiré based wave front sensor", Proceeding of 20th Iranian Conference on Optics and Photonics, 479, January 2014.
- 51- A. Razzaghi, **S. Rasouli**, and M. Maleki, "Investigation of the dynamics of a flowing fluid film in gravity by moiré technique", Proceeding of 20th Iranian Conference on Optics and Photonics, 438, January 2014.
- 52- M. Yeganeh and **S. Rasouli**, "Formulation of linear L-Fork gratings' moiré pattern using reciprocal vector and investigation of its applications", Proceeding of 20th Iranian Conference on Optics and Photonics, 227, January 2014.



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- 63- E. Hariri, **S. Rasouli**, and S. Khademi, "Measurement of optical opacity of atmosphere using imaging of a sinusoidal grating with variable period through the atmosphere", Proceeding of 19th Iranian Conference on Optics and Photonics, January 2013.
- 64- J. Bakhtiar Shoohani and **S. Rasouli**, "Study of the thermal lens aberrations using parallel moiré deflectometry", Proceeding of 19th Iranian Conference on Optics and Photonics, January 2013.
- 65- Y. Rajabi and **S. Rasouli**, "Determination of phase structure function of atmospheric turbulence using moiré deflectometry", Proceeding of the Annual Physics Conference of Iran, 496-499, 2012.
- 66- Y. Rajabi and **S. Rasouli**, "Optical propagation through non-Kolmogorov atmospheric turbulence using differential angle-of-arrival method and moiré deflectometry", Proceeding of 18th Iranian Conference on Optics and Photonics, February 2012.
- 67- R. Penjweini, **S. Rasouli**, and M. Dashti, "Nonlinear refraction measurements of materials using two-channel moiré wave-front sensor", Proceeding of 18th Iranian Conference on Optics and Photonics, February 2012.
- 68- P. Varmazyar, **S. Rasouli**, and M. Dasht, "Investigating the optical aberrations of lenses by using two-channel moiré wave-front sensor", Proceeding of 18th Iranian Conference on Optics and Photonics, February 2012.
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- 70- F. Bayat, **S. Rasouli**, M. Mahmoudi, S. Ghanbari, " Relativistic formulation of moiré fringes for moving periodic structures", Proceeding of 18th Iranian Conference on Optics and Photonics, February 2012.

- 71- K. Soltanlou and **S. Rasouli**, "Determination of temporal opening number in the recording successive frames of a CCD using moiré technique", Proceeding of 18th Iranian Conference on Optics and Photonics (Photonics section), February 2012.
- 72- **S. Rasouli**, H. Sarabi, and Y. Rajabi, "Determination of effective focal length of microlens by using parallel moiré deflectometry", Proceeding of the Annual Physics Conference of Iran, 123-126, 2011.
- 73- **S. Rasouli** and M. Ghorbani, "Nonlinear refractive index measuring in pump-probe configuration using double grating interferometer and Fourier transform analysis", Proceeding of 17th Iranian Conference on Optics and Photonics, 1033-1036, February 2011.
- 74- **S. Rasouli** and M. T. Tavassoly, "Analysis of the moiré pattern of moving periodic structures using reciprocal vectors approach", Proceeding of 17th Iranian Conference on Optics and Photonics, 252-255, February 2011.
- 75- **S. Rasouli** and M. Dashti, "An improved algorithm for processing moiré fringes by means of virtual traces", Proceeding of 17th Iranian Conference on Optics and Photonics, 252-255, February 2011.
- 76- R. Aalipour, M. T. Tavassoly, and **S. Rasouli**, "Determination of vibration parameters of a surface by measuring the visibility changes of a sinusoidal grating projected on it", Proceeding of 17th Iranian Conference on Optics and Photonics, 485-488, February 2011.
- 77- **S. Rasouli**, Sh. Esmaeili, and Farhad Sobouti, "A quantitative investigation of the performance of moiré seismometer", Proceeding of 17th Iranian Conference on Optics and Photonics, 17-20, February 2011.
- 78- B. Amini K., **S. Rasouli**, and Mohammad Mahmoudi, "Pixel Size Determination of a CRT Monitor Using a CCD Photograph by Moiré Technique", Proceeding of 3rd Iranian Conference on Photonics Engineering, 393-396, February 2011.
- 79- Y. Rajabi, Mohsen Dashti, Ali Akbar Panahi and **S. Rasouli**, "Measurement of time series of atmospheric refractive index structure constant, Cn2, during 24 hours using moiré deflectometry", Proceeding of 3rd Iranian Conference on Photonics Engineering, 281-284, February 2011.
- 80- K. Soltanlou and **S. Rasouli**, "Measurement of frame of digital camera using moving moiré fringes appeared in images taken by it from a display monitor", Proceeding of 3rd Iranian Conference on Photonics Engineering, 465-468, February 2011.
- 81- L. Bahmani, Maniya Maleki, and **S. Rasouli**, "Study of Faraday Waves by Moiré Techniques", Proceeding of 10th Iranian Conference on Condensed Matter, January 2011.
- 82- Sh. Esmaeili, **S. Rasouli**, and F. Sobouti, "Designing and constructing of a seismometer based on the moiré technique", Proceeding of the Annual Physics Conference of Iran, 62-65, 2010.
- 83- L. Bahmani, M. Malaki, and **S. Rasouli**, "Experimental study of Faradays waves", Proceeding of 16th Annual IASBS Meeting on Condensed Matter Physics, 61-64, May 2010.
- 84- **S. Rasouli**, "Merits of the moiré deflectometry in study of the atmospheric turbulence and wave-front sensing and its potential applications in astronomy", Proceeding of 14th meeting on research astronomy, IASBS, 63-68, May 13-14, 2010.
- 85- **S. Rasouli**, Yousef Ali Abedini, and Zahra Eskandari, "Fault displacement monitoring in Gelgati of Zanjan province by the moiré technique", Proceeding of 16th Annual Conference on Optics and Photonics of Iran, January 2010.
- 86- **S. Rasouli**, H Ghasemi, and Y. Rajabi, "Measurement of nonlinear refractive index of Au-nanoparticles in an automated z-scan arrangement employing "parallel" moiré deflectometry", Proceeding of 16th Annual Conference on Optics and Photonics of Iran, January 2010.
- 87- Y. Rajabi and **S. Rasouli**, "Effects of Spatial Coherence on Talbot Effect in Different Wavelengths", Proceeding of 16th Annual Conference on Optics and Photonics of Iran, January 2010.
- 88- **S. Rasouli** and Y. Rajabi, "Determination of the spectral response of the color CCD using self-imaging phenomenon", Proceeding of the Annual Physics Conference of Iran, 763-766, 2009.
- 89- **S. Rasouli** and A. N. Ramaprakash, "Wavefront distortions sensing by the moiré deflectometry", Proceeding of 15th Annual Conference on Optics and Photonics of Iran, January 2009.
- 90- **S. Rasouli** and M. A. Charsooghi, "Study of the Soret effect in thermal lens induced by a Gaussian laser beam in nonlinear organic dye solution using moiré deflectometry in pump-probe", Proceeding of 14th Annual IASBS Meeting on Condensed Matter Physics, 178-181, May 22-23, 2008.

- 91- **S. Rasouli**, Hossein Ghasemi, and Hamid Reza Khalesifard, "Nonlinear refractive index measurement of the organic dyes using moiré technique and Talbot effect in pump-probe configuration", Proceeding of 14th Annual Conference on Optics and Photonics of Iran, January 2008.
- 92- **S. Rasouli** and Hossein Ghasemi, "Application of the infinite moiré fringes and Talbot effect to the measurement of the nonlinear refractive index of the organic dyes", Proceeding of 14th Annual Conference on Optics and Photonics of Iran, January 2008.
- 93- **S. Rasouli** and M.T. Tavassoly, "Application of the Talbot effect by divergent laser beam to the measurement of the atmospheric turbulence parameters related to the angle of arrival fluctuations", Proceeding of 14th Annual Conference on Optics and Photonics of Iran, January 2008.
- 94- **S. Rasouli** and M.T. Tavassoly, "Specification of vibration mode and damping coefficient in long iron I-beam by time averaging moiré technique", Proceeding of 13th Annual Conference on Optics and Photonics of Iran, January 2007.
- 95- **S. Rasouli** and M. T. Tavassoly, "Measurement of the refractive index structure constant,  $C_n^2$ , and its profile in the atmospheric surface layer by moiré technique", Proceeding of 12th Annual Conference on Optics and Photonics of Iran, January 2006.
- 96- A. Salimi, **S. Rasouli**, and M. T. Tavassoly, "The refraction index fluctuation studies in the surface layer of atmosphere by moiré technique", Proceeding of 11th Annual Conference on Optics and Photonics of Iran, 168-172, February, 2005.
- 97- S. Ranjbar, H. R. Khalesifard, and **S. Rasouli**, "Measurement of refractive index profile of optical fiber preforms using moiré technique", Proceeding of 11th Annual Conference on Optics and Photonics of Iran, 349-354, February, 2005.
- 98- **S. Rasouli** and M. T. Tavassoly, "Displaying and measuring wavy defects and distortion in sheet glasses", Proceeding of 9th Photonics Conference of Iran, 85-88, 2003.
- 99- **S. Rasouli** and M. T. Tavassoly, "Study of phase defects in transparent materials by moiré technique", Proceeding of the Annual Physics Conference of Iran, 128-129, 2001.
- 100- **S. Rasouli**, H. R. Khalesifard, and A. Darudi, "Construction of diffraction gratings and holographic plate's using dichromated gelatin", Proceeding of 7th Photonics Conference of Iran, 45-47, 2000.
- 101- M. T. Tavassoly and **S. Rasouli**, "Design and construction a system for angle changing measurement of 0.1 seconds order by means of Talbot effect and moiré fringes", Proceeding of 7th Photonics Conference of Iran, 32-33, 2000.
- 102- M. T. Tavassoly and **S. Rasouli**, "Measurement of the temperature gradient in air using Talbot effect and moiré technique", Proceeding of the Annual Physics Conference of Iran, 39-40, 2000.

### Review Papers (in Persian)

- 1- **S. Rasouli**, "Wavefront sensors based on the Moiré technique and their applications", Lecture note for the workshop on moiré technique and its applications, Department of Physics, University of Tehran, and The Physics Society of Iran (PSI), pp. 63-71, November 13, 2014.
- 2- **S. Rasouli**, "New Applications of moiré technique", Lecture note for the Workshop on Optical Metrology (Honoring Scientific Achievements of Prof. M. T. Tavassoly), Department of Physics, University of Tehran, and The Physics Society of Iran (PSI), pp. 86-98, November 15, 2012.
- 3- **S. Rasouli**, "Introduction to the moiré technique", Danesh and Mardoom, Vol. 33-34, pp.166-175, 2003.

### Referee for Journals

- Optics Letters, Optics Express, Optical Materials Express, Journal of the Optical Society of America A, Journal of the Optical Society of America B, Applied Optics; Optica (formerly OSA)
- Optics and Laser Engineering, Optics & Laser Technology, Optik; Elsevier (UK)
- IEEE Transactions on Industrial Informatics, IEEE Photonics Journal; IEEE
- Nuclear Inst. and Methods in Physics Research, A

- **Journal of Modern Optics; Taylor & Francis**
- **Review of Scientific Instruments; AIP**
- **Optical Engineering; SPIE**
- **ACS Photonics**
- **Annalen der Physik**
- **Nature Communications**
- **Iranian Journal of Physics Research**
- **International Journal of Optics and Photonics (IJOP)**
- **Iranian Journal of Science and Technology, Transactions A: Science (ISTT)**
- ...

### Postdoctoral Fellows (past and present)

1. **Dr. Pouria Amiri**, Postdoctoral fellow Supported by the Iran National Elite Foundation, **in progress**.
2. **Dr. Reza Shirsavar**, Postdoctoral fellow Supported by the Iran National Elite Foundation, **in progress**.
3. **Dr. Peyman Soltani**, Postdoctoral fellow under Ministry of Science, Research and Technology (MSRT) support (June. 2021- August 2022)
4. **Dr. Ali Mohammad Khazaei**, “Design, construction, and application of new kinds of modified linear phase gratings with additional phase factor dictated on their phase terms,” Supported by the Iran National Science Foundation (INSF), 2021-2022.
5. **Dr. Saeed Hamzeloui**, “*White light Talbot carpet at the transverse plane*,” Supported by the Iran National Elite Foundation, under grant **No. 15386** (November 2017- November 2018).
6. **Dr. Mohammad Yeganeh**, “*Development of the use of moiré technique in singular optics*,” Supported by the Iran National Science Foundation (INSF), under grant **No. 95001286** (Feb. 2017- Oct. 2018).

### Dissertations Supervised by Me (Ph.D. Theses)

- 1- Yasin Ebrahimi, “**High-power vortex beam generation by zero and higher order suppression in 2D hybrid structures**,” (**Started**).
- 2- Momammad Reza Vahedi Anvar, “**Image encryption/decryption**,” (**Started**).
- 3- Hossein Mohamadi, “**Rotating radial carpet beams and investigating the group velocity of radial carpet beams**,” (**In progress**).
- 4- Mozghan Hashemi, “**Mueller matrix polarimetry of some biological samples**,” (**In progress**).
- 5- Mohaddeseh Mohammadi Masouleh, “**Investigation on Orthogonality and Geometrical Properties of Combined half-integer Bessel-like beams**,” Institute for Advanced Studies in Basic Sciences (**In progress**).
- 6- Mohsen Samadzadeh Bonab, “**Generation of circular array of optical vortices and their application in optical trapping**,” Institute for Advanced Studies in Basic Sciences (Co-supervisor: Dr. F. Hajizadeh and advising by Dr. Davud Hebri, **in progress**).

- 7- Pardis Yazdani Moghadam, “**Multi-particle 3D trapping using Fraunhofer diffraction pattern of a pure amplitude almost-periodic octagonal structure (PAAPOS) having a sinusoidal profile,**” Institute for Advanced Studies in Basic Sciences (Co-supervisor: Dr. F. Hajizadeh, **in progress**).
- 8- Mohammad Reza Asadipour “**Construction of moiré based engineering tools and Talbot phenomenon under structured beam illumination,**” Institute for Advanced Studies in Basic Sciences (**In progress**).
- 9- Somaieh Fathollahzadeh “**Generation and characterization of highly-structured optical vortices,**” Institute for Advanced Studies in Basic Sciences (**In progress**).
- 10- Samaneh Khoshkhahi, “**Single-frame spatial phase shifting interferometry,**” Institute for Advanced Studies in Basic Sciences (**In progress**).
- 11- Pouria Amiri, “**Engineering of diffraction structures for optimal characterization of the optical vortices,**” Institute for Advanced Studies in Basic Sciences (Finished April 15, 2024).
- 12- Mohammad Bagheri, “Investigating the propagation of radial carpet beams through convective and atmospheric turbulent media” Institute for Advanced Studies in Basic Sciences (Finished February 14, 2023).
- 13- Mohammad Hasan Daemi, “Investigation and optimization of performance of thin disk laser in order to stabilize its beam parameters,” Institute for Advanced Studies in Basic Sciences (Finished September 2020).
- 14- Ali Mohammad Khazaei, “Diffraction of a plane wave from radial gratings and from azimuthally-modified linear phase gratings,” Institute for Advanced Studies in Basic Sciences (Finished September 2019).
- 15- Davud Hebri, “Diffraction of light beams from structured apertures separable in the Cartesian and polar coordinate,” Institute for Advanced Studies in Basic Sciences (Finished September 2019).
- 16- Freshteh Sakha, “ Investigation of the optical specifications and the dynamics of the Nano-fluids in the pump-probe configuration and using the two gratings interferometry”, Institute for Advanced Studies in Basic Sciences (Finished February 2018).
- 17- Mohammad Yeghaneh, “Singularity in the moiré fringes’ structure and application of the moiré technique in singular optics”, Institute for Advanced Studies in Basic Sciences (Finished April 2016).
- 18- Yasser Rajabi, “Investigation of the atmospheric turbulence inhomogeneity and anisotropy by using moiré deflectometry”, Institute for Advanced Studies in Basic Sciences (Finished September 2015).
- 19- Ebrahim Mohammady Razi, “Investigation of Inhomogeneity and Anisotropy of Laboratory Convective Air Turbulence”, Institute for Advanced Studies in Basic Sciences (Finished November 2014).
- 20- Mohsen Dashti, “Applications of two-channel moiré wave-front sensor in atmospheric turbulence”, Institute for Advanced Studies in Basic Sciences (Finished March 2013).

### **Ph.D. Theses Advised by Me**

- 21- M. Panahi, “Atmospheric coherence time measurement by four-aperture DIMM defocus velocity technique,” Iran University of Science and Technology (Supervisors: Dr. M. Mollabashi and Dr. R. Shomali, Finished February 2020).

- 22- Ahmad Razzaghi, "Fabrication of surfaces with controllable wetting properties; and measurement of thin film thickness", Institute for Advanced Studies in Basic Sciences (Supervisor: Dr. M. Malaki, Finished November 2016).

### **M.Sc. Theses Supervised by Me**

- 1- Zahra Madankan, Institute for Advanced Studies in Basic Sciences, "Fractional spokes in radial gratings and their diffraction effects" (Finished March 2024).
- 2- M. Javad Narimani, "Gaussian beam near-field diffraction from pure amplitude 2N-gonal sinusoidal structures," Institute for Advanced Studies in Basic Sciences (Advising by Dr. Davud Hebri, Finished August 2023).
- 3- Ali Bakhtiyar, "Investigation of polarization in structured beams and the effect of SLM's anisotropy on it," Institute for Advanced Studies in Basic Sciences (Advising by Dr. P Soltani, Finished September 2023).
- 4- S. M. Hassan Narimani, "Gaussian beam far-field diffraction from pure amplitude 2N-gonal sinusoidal structures and its application in optical trapping," Institute for Advanced Studies in Basic Sciences (Advising by Dr. Davud Hebri, Finished July 2023).
- 5- Sepeher Mohebbali, Institute for Advanced Studies in Basic Sciences, "Propagation of radial carpet beam through an optical absorbing medium and its resilience against thermal lens effects created in the environment by the beam," (Finished September 2023).
- 6- Ariz Abdi, Institute for Advanced Studies in Basic Sciences, "Empirical generation of the combined half-integer Bessel-like beams" (Finished March 2023).
- 7- Mohammad Reza Zareei, "Experimental and theoretical study of diffraction of a plane wave from chirped radial gratings," Institute for Advanced Studies in Basic Sciences (Finished September 2022).
- 8- Azam Gholami, "Investigating propagation of the multipole optical vortices under different beam beds," Institute for Advanced Studies in Basic Sciences (Finished October 2021).
- 9- Razieh Azizkhani, "Design of radial structures and diffraction of Gaussian beams from them: Production of nondiffracting beams with arbitrary intensity distributions," Institute for Advanced Studies in Basic Sciences (Advising by Dr. Davud Hebri, Finished August 2020).
- 10- Jamal Bayat, "Rotatable annular multiple trapping with radial beams," Institute for Advanced Studies in Basic Sciences (Finished April 2019).
- 11- Pouria Amiri, "Derivation of a trapezoidal profile for the moiré fringes by transmittance averaging and characterizing digital displays," Institute for Advanced Studies in Basic Sciences (Finished September 2018).
- 12- Pouria Alizade, "Optimization of the recording setup for interference gratings by moiré technique," Institute for Advanced Studies in Basic Sciences (Advising by Dr. M. Yeganeh, Finished June 2018).
- 13- Mohammad Bagheri, "Determinations and separation of the atmospheric turbulence and air pollution effects on the visibility distance by using imaging through atmosphere," Institute for Advanced Studies in Basic Sciences (Finished September 2017).
- 14- Zeinab Koohi, "Illusory motions", Institute for Advanced Studies in Basic Sciences (Finished September 2017).
- 15- Mohsen Yosefi, "Determination of opening number of monitors by using moiré technique", Institute for Advanced Studies in Basic Sciences (Finished September 2017).
- 16- Parisa Salami, "Effect of metal nanoparticles on the conductivity of fluid", Institute for Advanced Studies in Basic Sciences (Finished September 2017).



- 17- Malihe Sardivand, "Determination of surface profile of the forced and stationary water vortex using fringe reflectometry", Institute for Advanced Studies in Basic Sciences (Finished September 2017).
- 18- Mostafa Shahmohammadi, "Design and Construction of a User Friend Micro Positioner Stage based on Moiré Technique", Institute for Advanced Studies in Basic Sciences (Finished September 2017).
- 19- Mortaza Lotfollahi, "Generation of Airy Beams by Using Coma Aberration and Measurement of Their Wavefront", Institute for Advanced Studies in Basic Sciences (Co-Supervisor Dr. D Abdollahpour, Finished September 2015).
- 20- Kouros Rezaee, "Interaction of light and core-shell nanoparticles", Institute for Advanced Studies in Basic Sciences (Co-Supervisor Dr. M F Miri from University of Tehran, Finished April 2015).
- 21- Seyyed Arash Sajjadi Ghazimahalleh, "Displacement measurement methods by using moiré technique and comparison of their sensitivities", Institute for Advanced Studies in Basic Sciences (Finished November 2014).
- 22- Mariam Nazari, "Measurement of expansion coefficient of solids-A moiré expansion coefficient gauge", University of Zanjan (Finished March 2014).
- 23- Manizheh Beyad, "Determination of spatial opening number of a CCD camera using moiré technique", University of Zanjan (Finished Feb. 2014).
- 24- Jafar Bakhtiar Shoohani, "Study of the Thermal lens Aberrations Using Parallel Moiré Deflectometry", Institute for Advanced Studies in Basic Sciences (Finished April 2013).
- 25- Mohammad Hasan Hasanloo, "Measurement of effective focal length of microlens by using rotational Moiré deflectometry", Institute for Advanced Studies in Basic Sciences (Finished April 2013).
- 26- Mahnaz Hashemi, "Determination of the temperature profile and thermal diffusivity coefficient of the nanofluid in the presence of thermal lens", Institute for Advanced Studies in Basic Sciences (Finished April 2013).
- 27- Elaheh Hariri, "Measurement of optical opacity of atmosphere using imaging of a sinusoidal grating with variable period through the atmosphere", University of Zanjan (Finished March 2013).
- 28- Mostafa Rajabi Ebgha, "Measurement of tree growth using moiré technique", Institute for Advanced Studies in Basic Sciences (Finished September 2012).
- 29- Parisa Goodarzi, "Gold nanocolloids: Optical and heat conductivity properties", University of Sistan and Baluchestan (Finished 3 March 2012).
- 30- Fatemeh Bayat, "Relativistic formulation of moiré fringes for moving periodic structures", University of Zanjan (Finished February 2012).
- 31- Parvin Varmazyar, "Investigating the Optical Aberrations of Lenses Using Two-Channel Moiré Wavefront Sensor" Institute for Advanced Studies in Basic Sciences (Finished January 2012).
- 32- Ali Akbar Panahi, "Real time moiré based wave-front sensing", Institute for Advanced Studies in Basic Sciences (Finished September 2011).
- 33- Bahareh Amini, "Characterization of Monitor screens by analyzing the moiré pattern appears on the images are recorded by a digital camera from it", University of Zanjan (Finished September 2011).
- 34- Rojia Penjweini, "Investigating the optical nonlinear characteristics of materials using two-channel moiré wave-front sensor" Institute for Advanced Studies in Basic Sciences (Finished September 2011).

- 35- Hasan Sarabi, "Measurement of effective focal length of microlens by using parallel Moiré deflectometer", Institute for Advanced Studies in Basic Sciences (Finished September 2011).
- 36- Kobra Soltanlu, "Determination of frame rate and temporal opening number of a CCD using moiré technique", Institute for Advanced Studies in Basic Sciences (Finished June 2011).
- 37- Mahnaz Ghorbani, "Study of Nonlinear Properties of Materials in Pump-Probe Configuration Using Double Grating Interferometer and Fourier Transform Analysis", Institute for Advanced Studies in Basic Sciences (Finished February 23, 2011).
- 38- Shamsadin Esmaeli, "Design and construction of a seismometer based on the moiré technique", Institute for Advanced Studies in Basic Sciences (Finished February 15, 2011).
- 39- Yasser Rajabi, "Applications of Talbot effect in spectroscopy", Institute for Advanced Studies in Basic Sciences (Finished September 2010).
- 40- Zahra Eskandari, "Fault displacement monitoring in some places on Zanjan province by the moiré technique", University of Zanjan (Finished February 2010).
- 41- Hossein Ghasemi, "Study of nonlinear properties of materials by using moiré technique", Institute for Advanced Studies in Basic Sciences (Finished, February 2009).

### M.Sc. Theses Advised by Me

- 42- Azim Amir-Heidari, "Study and simulation of the light emitting in optical diodes," Institute for Advanced Studies in Basic Sciences (Supervisor: Dr. Davud Abbaszadeh, Finished October 2022).
- 43- Zahra Rasouli, "Investigation of diagnostic power of illusory motion stimuli in dyslexia and Attention Deficit/Hyperactivity Disorder (ADHD)," Zanjan University, Department of Psychology, (Supervisor: Dr. Javad Salehi, Finished January 2022).
- 44- Pegah Torkaman, "Non-Differentiable Continuous Wavefront and Diffraction", Bu-Ali Sina University, Hamadan, (Supervisor: Dr. M. Amiri, Finished August 2013).
- 45- Lila Bahmani, "Experimental study of Faradays waves", Institute for Advanced Studies in Basic Sciences (Supervisor: Dr. M. Malaki, Finished September 2010).
- 46- Roghayeh Yazdani, "Application of the transport of intensity equation in processing of interference fringe patterns", Institute for Advanced Studies in Basic Sciences (Supervisor: Dr. Ahmad Darudi from Zanjan University, Finished May 2009).
- 47- Rasoul Aalipur, "Vibration analysis of a thin circular membrane with fixed boundaries by moiré technique", Institute for Advanced Studies in Basic Sciences, (Supervisor: Prof. M. T. Tavassoly from University of Tehran and IASBS, Finished September 2005).
- 48- Samaneh Ranjbar Rizi, "Nondestructive measurement of refractive index profile of fiber preforms using moiré technique and phase shift method", Institute for Advanced Studies in Basic Sciences, (Supervisor: Dr. H. R. M. Kholesifard, from IASBS, Finished September 2005).
- 49- Akram Salimi, "The refraction index fluctuation studies in the surface layer of atmosphere by moiré technique", Institute for Advanced Studies in Basic Sciences, (Supervisor: Prof. M. T. Tavassoly from University of Tehran and IASBS, Finished September 2004).

### Current and Completed Research Projects

- 1- Investigating some new aspects of the diffraction of structured beams from structured apertures, Dr. Pouria Amiri is working on the project as a postdoc researcher (April 2024- April 2025).
- 2- Manipulating hot plasma with non-uniform alternating magnetic fields, Dr. Reza Shirsavar is working on the project as a postdoc researcher, **Supported by the Iran National Elite Foundation** under **grant No. 5/74298** (October 2023- October 2024).

- 3- Near-field diffraction of vortex beams with non-zero radial indices from 2D periodic structures of various profiles and angles, **Supported by the Iran National Science Foundation (INSF)** under **grant No. 4020609** (June 2023 - May 2024).
- 4- Spectral changes of polychromatic light in diffraction from linear and radial gratings: hyperspectral imaging and applications for structured light, **Supported by Ministry of Science, Research and Technology under the MSRT Basic Science Support** (June 2021- May 2022).
- 5- Design, construction, and application of new kinds of modified linear phase gratings with additional phase factor dictated on their phase terms, **Supported by the Iran National Science Foundation (INSF)** under **grant No. 99002408** (Feb. 2021- Jan. 2022).
- 6- A comprehensive formulation of the diffraction of optical vortices from amplitude and phase periodic structures in the Cartesian and polar coordinates and some novel applications, **Supported by the Iran National Science Foundation (INSF)** under **grant No. 98019152** (2020-2022).
- 7- Propagation of Radial Carpet Beams Through Atmospheric Turbulence, **Supported by the Iran National Science Foundation (INSF)** under **grant No. 98003325** (2019-2020).
- 8- Transverse Talbot carpet of white light, Dr. Saeed Hamzeloui worked on the project as a postdoc researcher, **Supported by the Iran National Elite Foundation** under **grant No. 15386** (November 2017- November 2018).
- 9- Advancing the moiré technique for singular optics applications, Dr. Mohammad Yeganeh worked on the project as a postdoc researcher, **Supported by the Iran National Science Foundation (INSF)** under **grant No. 95001286** (Feb. 2016- Sep. 2018).
- 10- Far and near field diffractions from the periodic structures consisting phase singularities, Supported by the Institute for Advanced Studies in Basic Sciences (IASBS), Research Council under **grant No. G2016IASBS12632** (2016-2017).
- 11- Study of optical properties and dynamics of the nano-fluid using moiré deflectometry and spatial phase shifting of the moiré fringes, Supported by the Institute for Advanced Studies in Basic Sciences (IASBS), Research Council under **grant No. G2015IASBS12632** (2015-2016).
- 12- Study of optical properties and dynamics of the nano-fluid using moiré wavefront sensor in the pump-probe configuration, Supported by the Institute for Advanced Studies in Basic Sciences (IASBS), Research Council under **grant No. G2014IASBS12632** (2014-2015).
- 13- Study of anisotropy in the atmospheric turbulence by using four apertures DIMM and 2-channel moiré deflectometry methods, Supported by the Institute for Advanced Studies in Basic Sciences (IASBS), Research Council under **grant No. G2012IASBS107** (2012-2013).
- 14- Determination of inner and outer scales and inertial range of the atmospheric turbulence, Supported by the Institute for Advanced Studies in Basic Sciences (IASBS), Research Council under **grant No. G2011IASBS107** (2011-2012).
- 15- Designing and constructing of a moiré lensometer, Supported by Iran's National Elites Foundation (INEF), Zanjan Branch, 2011.
- 16- Use of a moiré deflectometer on a telescope to measure deviations from a Kolmogorov phase spectrum in atmospheric turbulence, Supported by the Institute for Advanced Studies in Basic Sciences (IASBS), Research Council under **grant No. G2010IASBS107** (2010-2011).
- 17- Application of the moiré deflectometry to the measurement of the wave-front distortions, designing and construction of a moiré wave-front sensor, Support by the Institute for Advanced Studies in Basic Sciences (IASBS), Research Council under **grant No. G2009IASBS107** (2009-2010).
- 18- Inter universities project No. 31303371, Designing and constructing optical measuring systems and testing the optical devices and instruments, (supported by Tehran University), 2005- 2006.
- 19- Fiber optics perform testing, (supported by Zanjan telecommunication Center, Tehran telecommunication research Center), 2003- 2005.
- 20- Measurement of the amplitude of the vibrations of large-scale structures, like bridge by moiré technique (supported by IASBS), 2002- 2003.
- 21- Study and measuring of fiber perform parameters, (supported by Zanjan telecommunication Center), 2001-2003.
- 22- Design and construction of a device for detecting and quantifying wavy distortions in sheet glass (supported by IASBS), 2001-2002.
- 23- Study of point and linear defects in transparent materials by moiré technique, (supported by IASBS), 2000-2001.

24- Holography with dichromated gelatin as a sensitive material (supported by IASBS), 1998-1999.

## Skill and Parallel Experiences

- Languages: Persian, English, Turkish-Azeri (native language), and Arabic (reading).
- Computer: MATLAB, Latex, and Microsoft Word.

## Memberships

- PSI, The Physical Society of Iran (PSI)
- OPSI, The Optics and Photonics Society of Iran (OPSI)
- SPIE, The International Society for Optical Engineering - SPIE (**Senior member**)
- Optica, Formerly OSA, Optica - Formerly the Optical Society of America (OSA)

## Seminars

- *Diffraction from periodic and almost periodic structures, Talbot effect, and beam shaping*, 4th International Conference on Light and Light-based Technologies (ICLLT) Gazi University, Ankara, Türkiye, May 16-18, 2024 (**Invited speaker**).
- *Diffraction of structured beams from periodic and pure amplitude almost periodic structures (PAAPS) and some applications*, RAMAN INTERNATIONAL OPTRONICS SOCIETY – 2023 (ROWS'2023), VIRTUAL INTERNATIONAL CONFERENCE, November 22, 2023 (**Invited speaker**).
- *Diffraction-based methods for characterizing and multiplication of optical vortices and generation of multiple particles trapping*, STI (Science, Technology and Innovation) Unit, The Abdus Salam International Center for Theoretical Physics (ICTP), Trieste, Italy, 13 September 2022.
- *Radial carpet and combined half-integer Bessel-like beams: generation, properties, and applications*, STI (Science, Technology and Innovation) Unit, The Abdus Salam International Center for Theoretical Physics (ICTP), Trieste, Italy, 6 September 2022.
- *Double-grating interferometry and thermal lensing investigation*, Multidisciplinary laboratory (MLab), The Abdus Salam International Center for Theoretical Physics (ICTP), Trieste, Italy, 31 August 2022.
- *A review on radial carpet beams (RCBs) and some new studies on the self-healing of the RCBs*, The VIII International Conference on Information Technology and Nanotechnology (ITNT-2022), May 23th to 27th, 2022, Samara, Russia (**Invited speaker**).
- *Optimized grating-based diffraction methods for the characterization and multiplication of optical vortices and the manipulation of multiple particles*, The VII International Conference on Information Technology and Nanotechnology (ITNT-2021), September 20th to 24th, 2021, Samara, Russia (**Invited speaker**).
- *Diffraction from structured apertures and structured light*, The Annual Physics Conference of Iran 1398, Tabriz, August 26-28, 2019 (**Invited speaker**).
- *Diffraction of optical vortices*, Namin-Ardabil, August 18, 2019 (**Invited speaker** of the first internal conference on Optoelectronics, Applied Optics, and Microelectronics, August 17-19, 2019).
- *A number of extraordinary features of the diffraction from radial gratings*, IASBS, January 28, 2019.
- *Radial carpet beams*, Annual physics meeting, University of Tehran, December 27, 2018.
- *Some interesting features of the diffraction from radial gratings*, Annual physics meeting, IASBS, December 5, 2018
- *Diffraction, singularity, and Gaussian curvature of the plane boundaries between the optical regimes* (**Invited speaker** of the 23th IASBS school for physics learning), IASBS, 3 February 2018.
- *Illusory motions* (**Invited speaker** of the 22th IASBS school for physics learning), IASBS, 15 February 2017.

- *Illusory motions (Invited speaker of the One-day physics workshop for High School Teachers), Zanjan, November 9, 2016.*
- *Public Scientific Lecture Series on the Occasion of the International Year of Light (IYL2015), "Moiré Patterns in Everyday life and Their Applications", IASBS, 25 November 2015.*
- *Public Scientific Lecture Series on the Occasion of the International Year of Light (IYL2015), "Illusory motions", IASBS, 23 April 2015.*
- *Wavefront sensors based on the Moiré technique and their applications, Department of Physics, University of Tehran and The Physics Society of Iran (PSI) / 13 November 2014 (Invited speaker of the Workshop on moiré technique and its applications on the Occasion of the International Year of Light -IYL2015).*
- *Moiré technique and its new and diverse applications in a wide range of fields, IASBS, 25 December 2013 (Invited speaker at the One-day workshop on current research in IASBS, Week of Research).*
- *Wavefront distortions and singularities measurement using moiré deflectometry, International Workshop on Singularities and Topological Structures of Light, ICTP, Italy, July 12, 2013 (Conferred the Best Oral Presentation award for the year 2013 by the OSA).*
- *Fundamental of moiré technique and its new applications, IASBS, 25 December 2012 (Invited speaker at the Two days workshop on current research in IASBS, Week of Research).*
- *Fundamental of moiré technique and its new applications, IASBS, 21 November 2012.*
- *New applications of moiré technique, Department of Physics, University of Tehran and The Physics Society of Iran (PSI) / 15 November 2012 (Invited speaker of the Workshop on Optical Metrology).*
- *Applications of moiré technique in study of thermal lens and some other thermo-optical effects, University of Sistan and Baluchestan, Zahedan, Iran, 1 March 2012 (Invited speaker of the second workshop on: optics/thermal in the nanostructures).*
- *Moiré technique and some of its applications, Zahedan, Iran, 1 March 2012 (Invited speaker of the second workshop on: optics/thermal in the nanostructures).*
- *A brief report on the research at the IASBS Moiré Group, IASBS, 2 November 2011.*
- *A brief review of applications of moiré technique in nonlinear optics, monitors and imaging systems characterization, spectroscopy, atmospheric turbulence studies, and wave-front sensing, International Symposium OPTICS and its applications, Yerevan - Ashtarak, Armenia, 8 September 2011 (Invited speaker- Plenary Lecturer).*
- *New applications of the moiré technique: Study of atmospheric turbulence, Wave-front sensing, Nonlinear Optics and ..., Zanjan University, 11 April 2011.*
- *Atmospheric turbulence, adaptive optics, wave-front sensing, and moiré technique, The 2th Iranian Conference on Optics & Lasers Engineering (ICOLE2011), Esfahan, 19 May 19 2011 (Invited speaker).*
- *Moiré technique, formulation and new applications, The 16th IASBS Physics School, Zanjan, 26 February 2011 (Plenary Lecturer).*
- *Study of atmospheric turbulence and wave-front sensing by means of moiré deflectometry and their potential applications in astronomical adaptive optics systems, Institute for Research in Fundamental Sciences (IPM), School of Astronomy, September 15, 2010.*
- *Designing and constructing of a seismometer based on the moiré technique, Annual Physics Conference of Iran, Invited lecturer (Key Lecture), Bu-Ali Sina University, Hamedan, September 12, 2010.*
- *A brief review on the application of moiré deflectometry to the wave-front sensing and atmospheric turbulence measurements, IASBS, June 9, 2010.*
- *Merits of the moiré deflectometry in study of the atmospheric turbulence and wave-front sensing and its potential applications in astronomy", 14th meeting on research astronomy, IASBS, May 13, 2010.*
- *Implementation of moiré interferometry in atmospheric turbulence, 16th Annual Conference on Optics and Photonics of Iran, Invited lecturer, Yazd University, January 2010.*
- *Two channel wave-front sensor arrangement employing moiré deflectometry, SPIE remote sensing 2009 conferences, Berliner congress center - bcc, Berlin, Germany, Sep. 3, 2009.*
- *Introduction to the moiré technique and its application in atmospheric turbulence, Mohagheh Ardabili University, Invited lecturer, May 17, 2009.*



- *Study of atmospheric turbulence using moiré technique, The Abdus Salam International Center for Theoretical physics (ICTP) - ICO/ICTP award seminar, February 10, 2009.*
- *Wavefront distortions sensing by the moiré deflectometry, Institute for Advanced Studies in Basic Sciences (IASBS), October 15, 2008.*
- *Moiré technique improves the measurement of atmospheric turbulence parameters, The Inter-university center for astronomy and astrophysics (IUCAA), Pune, India, September 5, 2008.*
- *New applications for the moiré technique in the atmospheric turbulence, nonlinear optics, and condensed matter, Institute for Advanced Studies in Basic Sciences (IASBS), March 2, 2008.*
- *Application of moiré deflectometry and single beam z-scan technique to the nonlinear refractive index measurement, Institute for Advanced Studies in Basic Sciences (IASBS), January 23, 2008.*
- *Study of atmospheric turbulence by laser beam propagation, Institute for Advanced Studies in Basic Sciences (IASBS), October 24, 2007.*
- *Measuring the damping coefficient in a long iron I-beam by time averaging moiré technique, Institute for Advanced Studies in Basic Sciences (IASBS), October 18, 2006.*
- *Measurement of modulation transfer function of the atmosphere in the surface layer by moiré technique, SPIE remote sensing 2006 conferences, Stockholm International Fairs, Sweden, Sep. 12, 2006.*
- *Measurement of the refractive-index structure constant, Cn2, and its profile in the ground level atmosphere by moiré technique, SPIE remote sensing 2006 conferences, Stockholm International Fairs, Sweden, Sep. 12, 2006.*
- *Measurement of the refractive index structure constant, Cn2, and its profile in the atmospheric surface layer, IASBS, Nov. 23, 2005.*
- *Specification of vibrational modes and amplitudes in large-scale structure by time averaging moiré technique, SPIE Symposium on Optical Metrology 2005, International Congress Centre Munich (ICM), Germany, June 14, 2005.*
- *Specification of vibrational wavelengths and amplitudes in large-scale structures by time averaging moiré technique, IASBS, June 8, 2005.*
- *Measurement of the amplitude of the vibrations of large structures, like bridge by moiré technique, IASBS, Feb. 4, 2004.*
- *Measuring the refractive indices of optical fibers and preforms by focusing method, IASBS, May 14, 2003.*
- *Displaying and measuring optical defects of sheet glasses, IASBS, 2001.*
- *Study of phase defects in transparent materials by moiré techniques, International Summer College on Optics and Photonics (ISCOP), Center for Applied Physics and Astronomical Research, Tabriz University, Iran, August 2001.*
- *Angle changing measurement of 0.1 seconds order by means of Talbot effect and moiré fringes, IASBS, 2000.*
- *Introduction to moiré technique, computer generation moiré and simulation, Institute for Advanced Studies in Basic Sciences (IASBS), 2000.*
- *Study of phase objects using the Talbot effect and moiré techniques, Winter College on Optics and Photonics, The Abdus Salam International Center for Theoretical Physics, Trieste, Italy, February 2000 (LAMP Seminars).*
- *Construction of diffraction gratings and holographic plate's using dichromated gelatin, IASBS, 1999.*
- *Preparation of nonlinear glass using Sol-Gel technique, IASBS, 1998.*
- *Measurement of the temperature gradient in air using Talbot effect and moiré technique, IASBS, 1997.*
- *Methods for the moiré fringes analyzing, IASBS, 1997.*

## Teaching Experiences

- Fourier Optics (For Ph. D. and M.Sc.)
- Atmospheric Turbulence (For Ph. D.)
- Moiré technique (For Ph. D. and M.Sc.)
- Optical Data Processing (For Ph. D. and M.Sc.)
- Interferometry (For Ph. D. and M.Sc.)
- Lasers Physics (For M.Sc.)
- Adaptive Optics (For Ph. D.)
- Advanced Optics I (For M.Sc.)
- Advanced Optics II (For Ph. D. and M.Sc.)
- Photonics I, II, III (For M.Sc. and Ph. D.)



- Advanced Optics Laboratory I and II (For M.Sc. and Ph. D.)
- Classical Mechanics (For B.Sc.)
- Electricity and Magnetism (For B.Sc.)
- General Physics Lab I and II (For B.Sc. & C. Ph.D.)
- General Physics Lab II (For B.Sc. & C. Ph.D.)
- General Optics (For B.Sc.)
- Analytical Mechanics I (For B.Sc.)
- Heat and Thermodynamics (For B.Sc.)
- Modern Physics (For B.Sc.)
- Waves (For B.Sc.)

## Inventions and Patent Applications

- 1- **S. Rasouli** and M. Shahmohammadi, "Micron-precision motion and displacement sensor using the moiré technique," **Iranian Patent**, issued March 2017.
- 2- H. Sarabi, Y. Rajabi, and **S. Rasouli**, "A device for measuring focal length of micro-lenses," **Iranian Patent 78271**, issued January 14, 2013.
- 3- **S. Rasouli** and P. Varmazyar, "Moiré lensometer (MLM)," **Iranian Patent 73486**, issued January 17, 2012.
- 4- **S. Rasouli**, Sh. Esmaeili, and F. Sobouti, "Moiré seismometer (MSM)," **Iranian Patent 68300**, issued January 10, 2011.
- 5- **S. Rasouli**, "Designing and constructing of a two channel wave-front sensor based on moiré deflectometry (MWFS)", **Iranian Patent 66946**, issued October 12, 2009.
- 6- **S. Rasouli**, "Designing and constructing of an instrument for the atmospheric turbulence measurement using moiré technique - moiré deflectometer for the atmospheric turbulence measurements (MDATM)", **Iranian Patent 45800**, issued January 28, 2008.
- 7- **S. Rasouli**, M. T. Tavassoly, and A. R. Sadrolhoseini, "Designing and constructing of a simple portable slope meter based on moiré technique - moiré slope meter (MSM)", **Iranian Patent 34135**, issued February 20, 2006.
- 8- M. T. Tavassoly and **S. Rasouli**, "Designing and constructing of a device for displaying and measuring wavy defects in sheet glasses - moiré deflectometer (MDM)", **Iranian Patent 28441**, issued March 12, 2003.
- 9- **S. Rasouli**, "Designing and constructing of a simple, portable and fine displacement meter", 2004.
- 10- **S. Rasouli**, "Designing and constructing of a simple and portable cylindrical limb meter using moiré technique", 2003.
- 11- **S. Rasouli**, A. Darudi, and M. T. Tavassoly, "Moiré fringes analysis software for detecting and measuring wavy distortions in sheet glass, " 2002.
- 12- **S. Rasouli** and M. T. Tavassoly, " Measuring the angular size of distant objects with 0.1 arc sec accuracy using Talbot and moiré effects ," 2000.
- 13- **S. Rasouli**, H. R. M. Khalesifard, and A. Darudi, "Constructing of holography plates using dichromate ammonium gelatin as a sensitive medium", 1999.
- 14- **S. Rasouli** and H. R. M. Khalesifard, "Constructing the diffraction phase grating (1500 line/mm) using dichromated ammonium gelatin", 1998.

## Professional Development and Research Visits

- Research visitor as a senior associate member, The Abdus Salam International Centre for Theoretical Physics (ICTP), Trieste, Italy, Visit from 25 Aug 2023 to 25 Sep 2023.
- Research visitor as a senior associate member, The Abdus Salam International Centre for Theoretical Physics (ICTP), Trieste, Italy, Visit from 25 Aug 2022 to 16 Sep 2022.
- 24th Iranian Conference on Optics and Photonics and 10th Iranian Conference on Photonics Engineering, Shahrekord University, Shahrekord, February 2018.
- 23th Iranian Conference on Optics and Photonics and 9th Iranian Conference on Photonics Engineering, Tarbiat Modares University, Tehran, February 2017.
- IASBS-ICTP Workshop on Structured Light and Matter: Concepts and Applications, September 17-23, 2016.

- 21th Annual Conference on Optics and Photonics of Iran, Shahid Beheshti University, Tehran, January 2015.
- Workshop on moiré technique and its applications, Department of Physics, University of Tehran and the Physics Society of Iran (PSI), 13 November 2014.
- Advanced Workshop on Nonlinear Photonics, Disorder and Wave Turbulence, ICTP, Italy, July 15-19, 2013.
- International Workshop on Singularities and Topological Structures of Light, ICTP, Italy, July 8-12, 2013.
- Workshop on Optical Metrology, Department of Physics, University of Tehran and The Physics Society of Iran (PSI), 15 November 2012.
- Second workshop on: optics/thermal in the nanostructures, University of Sistan and Baluchestan, Zahedan, Iran, 1-2 March 2012.
- International Symposium on OPTICS and its applications, Yerevan - Ashtarak, Armenia, 5 - 9 September 2011.
- Research visitor as an associate member, The Abdus Salam International Centre for Theoretical Physics (ICTP), Trieste, Italy, July 2, August 7, 2011.
- 17th Iranian Conference on Optics and Photonics and 3rd Iranian Conference on Photonics Engineering, International Center for Science, High Technology & Environmental Sciences, Mahan, Kerman, 8-10 February 2011 .
- International Symposium on Mid-Sized Telescopes: Science and Instrumentation, IPM School of Astronomy & Iranian National Observatory, Kish Island, Persian Gulf, Iran, Dec. 20– 21, 2010.
- Annual Physics Conference of Iran, Bu-Ali Sina University, Hamedan, September 11-14, 2010.
- 16th Annual Conference on Optics and Photonics of Iran, Yazd University, Yazd, 26-28 January 2010.
- SPIE remote sensing 2009 conferences, Berliner congress center - bcc, Berlin, Germany, 31 August -3 Sep. 2009.
- Winter College on Optics in Environmental Science, The Abdus Salam International Center for Theoretical Physics, Trieste, Italy, 2 to 13 February, 2009.
- Research visitor, The Inter-university center for astronomy and astrophysics (IUCAA), Pune, India, 15 August- 15 September 2008.
- 14th Annual Conference on Optics and Photonics of Iran, Rafsanjan University, Rafsanjan, 29-31 January 2008.
- 13th Annual Conference on Optics and Photonics of Iran, Iran Telecommunication Research Center, Tehran, 6-8 January 2007.
- SPIE remote sensing 2006 conferences, Stockholm International Fairs, Stockholm, Sweden, 11-14 Sep. 2006.
- 12th Annual Conference on Optics and Photonics of Iran, Shiraz University, Shiraz, 31 January – 2 February 2006.
- SPIE Symposium on Optical Metrology 2005, International Congress Centre Munich (ICM), Germany, 12-17 June 2005.
- 11th Annual Conference on optics and photonics of Iran, Shahid Beheshti University, Tehran, Iran, 2-3 February 2005.
- WIPO national seminar on the use of technological information contained in patent documentation as a tool for development, Tehran, 16-18 August 2004
- The first Workshop on Components for WDM Optical Communication Systems, Shahid Beheshti University, Tehran, Iran, 6-9 July 2003.
- 9th Photonics Conference of IRAN, Iran Telecommunication Research Center, 5-6 Feb. 2003.
- Annual Physics Conferences of Iran, Zanjan University, Zanjan, Iran, 24-27 August 2002.
- Annual Physics Conferences of Iran, Teacher Training University of Sabzevar, Sabzevar, Iran, 27-30 August 2001.
- International Summer College on Optics and Photonics (ISCOP), Center for Applied Physics and Astronomical Research, Tabriz University, Iran, 12-24 August 2001.
- 7th Photonics Conferences of Iran, Laser Research Institute, Shahid Beheshti University, Tehran, Iran, 6-8 Sep. 2000.
- Annual Physics Conferences of Iran, Shahrood University, Shahrood, Iran, 27-31 August 2000.
- Winter College on Optics and Photonics, The Abdus Salam International Center for Theoretical Physics, Trieste, Italy, 7-25 February, 2000.
- Optics Conferences, Emam Hossein University, Tehran, Iran, 8-9 Sep. 1999.
- Optics Conferences, Iran University of sciences and technology, Tehran, Iran, 1998.
- Summer School of Optics, Institute for Advanced Studies in Basic Sciences, Zanjan, Iran, 9-21 August 1997.

## Short Courses

- S. Rasouli, “Diffraction, singularity, and Gaussian curvature of the plane boundaries between the optical regimes,” The 23th IASBS Physics School, Feb. 3, 2018.
- S. Rasouli, “Part one: Moiré Patterns in Everyday life and Their Applications; Part two: Illusory motions,” The 22th IASBS Physics School, Feb. 2017.
- S. Rasouli, “Moiré technique and its new and diverse applications in a wide range of fields”, The 19th IASBS Physics School, Feb. 2014.
- S. Rasouli, “Moiré technique, formulation and new applications”, The 16th IASBS Physics School, 26-30 Feb. 2011.
- S. Rasouli, "New applications for the moiré technique in the atmospheric turbulence, nonlinear optics, and soft effect ", The 13th IASBS Physics School, 3-7 May 2008.
- S. Rasouli, "Applications of the moiré technique ", The 12th IASBS Physics School, 20-23 May 2007.
- S. Rasouli, "Introduction to the moiré technique", Summer school on Basic sciences, Institute for Advanced Studies in Basic Sciences, Zanjan, Iran, summer 2002.
- S. Rasouli, "Holography", Summer school on Basic sciences, Institute for Advanced Studies in Basic Sciences, Zanjan, Iran, summer 2002.