

CURRICULUM VITAE (Ahmad Darudi)

Personal data

Name: Ahmad
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Date of Birth : 16/03/1970
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Gender : Male
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Education

1) Ph.D.

Title : “Interferometry without reference wave“, Institute for Advanced Studies in Basic Sciences(IASBS), February, 2001 .

Supervisor : Prof. M. Taghi Tavassoly

Subject : Interferometry, Optical testing, wave-front sensing.

Personal Profile

- Associate Professor and Lecturer, Department of physics, Zanjan University, Feb. 2001 to 2009 & 2012 – present.
- Head of Optics Laboratories of University of Zanjan, Feb. 2001 to Sep. 2009 & 2012-present.
- Research Scientist, Lund Observatory, Lund University, Sweden, June 2009-June 2011
- System engineer of INO340, June 2011-2015.
- Head of Optics group of INO340, June 2011-2015.
- Associate Researcher and Lecturer of the Department of Physics, Institute for Advanced Studies in Basic Sciences (IASBS), Feb. 2001 to Sep. 2009.
- Member of Optical society of America (OSA)
- Member of International Society for Optical Engineering (SPIE)
- Member of Physical society of Iran
- Member of Optics and photonic society of Iran

Teaching experience:

Optics Laboratory (For B.S.)
Advanced Optics I (For M.Sc.)
Advanced Optics II (For M.Sc. & PhD)
Advanced Optics Laboratory (For M.Sc.)
Applied Optic (For B.S.)
Applied Optic Laboratory (For B.S.)
Optic (For B.S.)
Electromagnetism I (For B.S.)
Electromagnetism II (For B.S.)
Adaptive Optics (principle and applications) (For PhD)
Fourier Optics (For M.Sc.)
Experimental methods in physics (for PhD)
Optical design (for PhD)

Research Experiences:

- 1) Hyperspectral Imaging, design and applications
- 2) Wave-front sensing
- 3) Low coherence interferometry
- 4) Fringe analysis
- 5) Active and Adaptive Optics
- 6) Optical design using ZEMAX software
- 7) Interferometry

Research Projects:

- Design and construction of Earth Horizon Simulator, (2017-2019).
- Consulting on Telescope Secondary mirror test and delivery, (2016-2020)
- Design and construction of Hyperspectral imager, Visible and Near IR, (2017).
- Design and construction of Hartman on chip wavefront sensor, (2014).
- Design and construction of hyperspectral imager, (2015).
- Complementary test of primary mirror (INO340), (2014).
- Consulting on primary mirror test and delivery, (2011-2014).
- Consulting the Iranian National Observatory (INO), Head of Optic, (2011-2014).
- Using dichromated amunium gelatin (DCG) as a sensitive medium in holography, (1997-1998) *supported by IASBS*.
- Refractive index profile measurement of planar wave guide with wedge method, (2002-2003) *supported Iran Telecommunication Research Center*.
- Establishment an Optical Shop Testing laboratory, (2001-2002), *supported by IASBS*.
- New fringe analyzing method base on the 3D fringe analysis, (2001-2002) *supported by Zanzan university*.
- Measurement of fiber perform parameters, (2001-2005), supported by Iran Telecommunication Research Center.
- Making a differential image motion monitor (DIMM), supported by Iranian National Observatory (INO) and IASBS (2004).
- Site selection of Iranian national observatory, supported by Iranian National Observatory (INO) (2004-2008).
- Making an interferometer equipment for micro lens testing, Supported by optical industries (2001-2003)
- Design and construction of a telescope for measurement of the albedo of the Earth (Earthshine telescope, Lund University, Sweden, June 2009 until June 2011)
- Conceptual design of instrument support structure (Adapter) of INO340, July 2011-present)
- Design and making of a Hartmann test instrument for concave surfaces of large curvatures. Aug. 2013-May. 2014
- Design and making a Fizeau test instrument for evaluation of a 3.4 meter mirror of the INO340 telescope. Nov. 2013-Aug. 2014

Patent

An interferometer for micro lens testing, 2008 (Iranian Patent office).

Publications:

Google Scholar

https://scholar.google.com/citations?hl=en&user=xMYBNTwAAAAJ&view_op=list_works&sortby=pubdate

Journal Publications:

1) [Reconstruction of Interfering Wave-Fronts by Analyzing their Interference Pattern in Three Dimensions](#)

M. Taghi Tavassoly and **Ahmad Darudi**

Optics Communications 175, 2000, 43–50

2) [Interferometric Specification of Lens Parameters](#)

Ahmad Darudi and M. Taghi Tavassoly

Optics and Lasers in Engineering 35, 2001, 79-90

3) [Designing and Making a Differential Image Motion Monitor.](#)

A. Darudi , Sadollah Nasiri

Iranian Journal of Physics Research, V.5, N.3 (2005)1-8.

4) [Determination of the refractive index profile of a symmetric fiber preform by the transport of intensity equation](#)

Ahmad Darudi, R. Shomalia, M.T. Tavassoly,

Optics & Laser Technology 40 (2008) 850–853

5) [An interferometric method for refractive index profiling of planar gradient index waveguides](#)

Ahmad Darudi, S. M. R. Sadat Hosseini

Optics and Lasers in Engineering 47 (2009) 133-138

6) [Optical Diffractometry,](#)

M. T. Tavassoly, M. Amiri, **A. Darudi**, R. Alipour, Ahad Saber, A. R. Moradi

J. Opt. Soc. Am. A/Vol. 26, No. 3/March (2009).

7) [Superimposing the waves diffracted from two similar hot and cold wires provides the temperature profile around the hot one](#)

Rasoul Aalipour, M. Taghi Tavassoly, and **Ahmad Darudi**

Applied Optics, Vol. 49, Issue 19, (2010) 3768-3773.

8) [A sub pixel Resolution Method,](#)

Siamak Khademi, **Ahmad Darudi** and Zahra Abbasi,

World Academy of Science, Engineering and Technology, Issue 69, Sept. 2010.

- 9) [Measurement of the atmospheric primary aberrations by a 4-aperture differential image motion monitor](#)
Ramin Shomali, Sadollah Nasiri, and **Ahmad Darudi**,
Journal of Optics, Vol. 13, No. 5, 2011.
- 10) [Reconstructing the phase distribution of two Interfering wavefronts by analysis of their nonlocalized fringes with an iterative method](#)
Ehsan A. Akhlaghi, Ahmad Darudi, and M. Taghi Tavassoly,
Optics Express, Vol. 19, Issue 17, pp. 15976-15981, 2011.
- 11) [Application of Irradiance Transport Equation in aspheric surface testing](#)
Ramin Shomali, Ahmad Darudi, and Sadollah Nasiri
Optik, 123, 2012.
- 12) [Effect of laser priming on canola yield and its components under salt stress](#),
Samira Khan Mohammadi, Farid Shekari, Reza Fotovet, **Ahmad Darudi**,
International Agrophysics, vol. 26, nr. 1, 2012.
- 13) [Experimental measurement of the atmospheric primary aberrations by a 4-aperture differential image motion monitor](#),
Ramin Shomali, **Ahmad Darudi**, and Sadollah Nasiri
Journal of Optics, 7 Nov. 2013.
- 14) [The colour of the Dark Side of the Moon](#),
P. A. Thejll, C. Flynn, H. Gleisner, Torben Andersen, A. Ulla, Mette Owner-Petersen,
Ahmad Darudi, Henriette Schwarz.
Astronomy & Astrophysics, 563, A38 ,2014.
- 15) [Application of transport-of-intensity equation in fringe analysis](#),
Javad Amiri, **Ahmad Darudi**, Siamak Khademi, and Peyman Soltani
Optics Letter, Vol. 39, No. 10, May 15, 2014.
- 16) [Fully Automated, High Speed, Tomographic Phase Object Reconstruction Using the Transport of Intensity Equation In Transmission and Reflection Configurations](#),
Thanh Nguyen, Georges Nehmetallah, Dat Tran, **Ahmad Darudi**, and Peyman Soltan
Vol. 54, No. 35, Applied Optics 2015.
- 17) [Digital holographic microscopy of phase separation in multicomponent lipid membranes](#)
Authors: Vahideh Farzam Rad, Ali-Reza Moradi, **Ahmad Darudi**, and Lobat Tayebi
J. Biomed. Opt. 21(12), 126016 (Dec. 2016).
- 18) [Accurate Testing of Aspheric Surfaces Using the Transport of Intensity Equation by Properly Selecting the Defocusing Distance](#),
Peyamn Soltani, **Ahmad Darudi**, George Nehmetallah , Alireza Moradi, Javad Amiri
Vol.56 N.3, Applied Optics, 2017.

19) Digital holographic microscopy as a new technique for quantitative measurement of microstructural corrosion in austenitic stainless steel

Pegah Asgari, M. Sc; Yousef Pourvais, M. Sc; Pedram Abdollahi, M. Sc; Ramin Khamedi, **Ahmad Darudi**,

Materials & Design, Volume 125, 5 July (2017), Pages 109-115

20) First day-time seeing observations at the Observatory of University of Zanjan in Iran, P Ahmadi, N Dadashi, H Safari, **A Darudi**, Iranian Journal of Astronomy and Astrophysics, Vol.5, (2018), Page 21-32.

21) Structural and Optical Properties of Ce^{3+} -Doped TiO_2 Nanocrystals Prepared by Sol–Gel Precursors,

Azam Jafari, Siamak Khademi, Majid Farahmandjou, **Ahmad Darudi**, Reza Rasuli

Journal of Electronic Materials, **47**, pages6901–6908(2018)

22) Site selection for the 3.4 m optical telescope of the Iranian National Observatory

Sadollah Nasiri, **Ahmad Darudi**, Habib G Khosroshahi, Marc Sarazin

Volume 486, Issue 3, July (2019)

23) Preparation and Characterization of Cerium Doped Titanium Dioxide Nanoparticles by the Electrical Discharge Method

A Jafari, S Khademi, M Farahmandjou, **A Darudi**, R Rasuli

Journal of Advanced Materials in Engineering , Volume 38, Issue 2 , (2019).

24) Absolute interferometric testing of a flat surface based on Laplacian method

Peyman Soltani, **Ahmad Darudi**

Optics Letters, Vol. 45,**Issue 11**,pp. 3026-3029,(2020)

<https://doi.org/10.1364/OL.391535>

25) Non-invasive in situ monitoring of bone scaffold activity by speckle pattern analysis

VF Rad, M Panahi, R Jamali, **A Darudi**, AR Moradi

Biomedical optics express 11 (11), 6324-6336, (2020)

26) 3D monitoring of the surface slippage effect on micro-particle sedimentation by digital holographic microscopy

Panahi, Majid; Jamali, Ramin; Rad, Vahideh Farzam; Khorasani, Mojtaba; **Darudi, Ahamd**; Moradi, Ali-Reza;

Scientific Reports, 11, 1, (2021)

- 27) Atmospheric coherence time measurement by modified Fast Defocus method
Akbari, Lida; **Darudi, Ahmad**; Shomali, Ramin;
Optik, 233, (2021)
- 28) Detection of intralayer alignment in multicomponent lipids by dynamic speckle pattern analysis
Panahi, Majid; Rad, Vahideh Farzam; Sasan, Shiva; Jamali, Ramin; Moradi, Ali-Reza; **Darudi, Ahmad**;
Journal of Biophotonics, 15, 8, (2022)
- 29) Preparation and characterization of cerium doped titanium dioxide nanoparticles by the electrical discharge method
Jafari, A; Khademi, S; Farahmandjou, M; **Darudi, A**; Rasuli, R;
Journal of Advanced Materials in Engineering (Esteghlal), 38, 2, (2022)
- 30) A Review of the Operational Features of FSO Links, the Broadband and Secure Wireless Links of the Future Communications
Darudi, Ahmad; Bakhshi, Hadi;
Electronics Industries, 13, 3, (2024)
- 31) Hyperspectral imaging of acoustically trapped plastics
Bakhshi, Hadi; Mohsenvand, Kooshan; **Darudi, Ahmad**; Moradi, Ali-Reza;
Optics Letters, 50, 1, (2024)
- 32) A Numerical Investigation of the Effect of the Geometrical and Mechanical Mass Characteristics on the Impulse Wave Caused by the Sliding into the Dam Reservoir
Fateme Maleki, Jalal Bazargan, **Ahmad Darudi**;
Journal of Environment and Water Engineering, 3, (2024)
- 33) Digital in-line holography for wavefront sensing
Panahi, Majid; **Darudi, Ahmad**; Moradi, Ali-Reza;
Optics & Laser Technology, 180, (2025)
- 34) A Novel Hyperspectral Imaging Approach for Early Detection of Broomrape Infestation in Tomato Plants
Shokri, Maisam; **Darudi, Ahmad**; Yousefi, Ali Reza; Babaei, Sirwan;
scientific report, (2025) Submitted