

İsa Hatipođlu, Ph.D.

Department of Photonics,
Faculty of Applied Sciences
Gazi University

January, 2024
Emniyet Mahallesi Abant Sokak TOKİ Blokları
(C-Blok Giriş Kat Ofis:Z08)
Yenimahalle / ANKARA
E-mails: isahatipoglu[at]gazi.edu.tr,
isahatipoglu[at]gmail.com

QUALIFICATIONS AND SUMMARY

- Experienced in extremely multidisciplinary (optics, electronics, and material science) theoretical and experimental research with excellent data analysis skills
- Creative, self-motivated individual with experience in project management and easy integration into a multicultural environment
- Experienced in optoelectronic device modeling, thin-film growth by plasma-assisted molecular beam epitaxy (MBE), fabrication of semiconductor lasers and photodetectors, and functional defects of semiconductors
- Experienced in optical/electrical/structural characterization of materials and characterization of optoelectronic devices

EDUCATION

- Ph.D.** **University of Central Florida, Orlando, FL, USA**
2017-2021
CREOL, the College of Optics and Photonics
Ultraviolet solar-blind Ga₂O₃-based photodetectors
- M.S.** **University of Central Florida, Orlando, FL, USA**
2017-2019
CREOL, the College of Optics and Photonics
III-V semiconductor laser fabrication and characterization.
- M.S.** **University of Alabama at Birmingham, Birmingham, AL, USA**
2014-2016
Department of Electrical Engineering
Unsynchronized scanning with a low-cost laser range finder for real-time range imaging.
- B.S.** **Erciyes University, Kayseri, Turkey**
2008-2012
Department of Electrical and Electronics Engineering
Robotic vehicle application using ARM-based microcontrollers and multi-sensory systems.

WORK EXPERIENCE

- 2023-Present **Assistant Professor**, Department of Photonics, Gazi University, Ankara, Türkiye
- 2022-2023 **Assistant Professor**, Electrical and Electronics Engineering, Şırnak Üniversitesi, Türkiye
- 2018-2021 **Graduate Research Assistant** *CREOL, the College of Optics and Photonics, University of Central Florida, Orlando, FL, USA*
- 2019-2021
 - *Nanophotonic Device Group* led by Prof. Winston Schoenfeld
 - Planned and managed several research projects with a minimum guidance
 - Grew metal-oxide thin films by Plasma-Assisted Molecular Beam Epitaxy
 - Fabricated a variety of microscale photodetectors using cleanroom processes
 - Characterized materials and devices using several optical components such as monochromator, ellipsometer, spectrophotometer, and table-top optical setups
 - Characterized materials using XRD, CL Hyperspectral Imaging, XPS, AFM
 - Performed electrical characterization of optoelectronic devices (IV, CV, Trans.)
 - Analyzed experimental data obtained by many characterizations for advancement in understanding the physical phenomena behind device characteristics.

January, 2024

- 2018
- *Plasmonics and Applied Quantum Optics Group* led by Prof. Mercedeh Khajavikhan
 - Fabricated III-V semiconductor lasers for telecom applications using cleanroom processes such as photolithography, dry/wet etching, PVD, CVD, RTA, Wire Bonding, etc.
 - Contributed to the design and simulation by providing feedback from fabrication and solved many fabrication problems
- 2014-2016 **IT-Support** *University of Alabama at Birmingham*, Birmingham, AL, USA
- Technical support of university-provided software

SELECTED GRADUATE COURSES

Laser Engineering, Laser Engineering Laboratory, Light-Matter Interaction, Optical Wave Propagation, Interference and Diffraction, Imaging and Optical Systems, Computational Photonics, Nonlinear Guided Wave Optics, Materials for Optical Systems

TEACHING EXPERIENCE

Spring 2024: Infrared Optics, Modelling and Programming in Photonics, Applied Photonics (MS)
Fall 2023: Infrared Optics, Electronic Circuits, Modelling and Programming in Photonics
Spring 2023: Lasers and Photonics, Infrared Optics
Fall 2022: Introduction to Python Programming, Fundamentals of Electronics, Technical English

TECHNICAL SKILLS

Programming : Python, MATLAB, Assembly, C
Semiconductor Fabrication and Growth : Photolithography, Dry/Wet Etching, PVD, CVD, RTA, Wire Bonding, Molecular Beam Epitaxy
Characterization : Photospectroscopy, Ellipsometry, Electrical Characterizations (I-V, transient, conductivity, CV measurements), XPS, AFM, XRD, Cathodoluminescence Hyperspectral Image Analysis
Computer Programs : Origin, CompleteEASE, Blender, Eagle CAD, Arduino, Lumerical
Computational Photonics : FDTD, T-Matrix, S-Matrix, RCWA, Beam Propagation Method
Electrical Engineering Skills : PCB Design and Manufacturing, Embedded Systems (Arduino/Raspberry Pi/TI), Multiple Sensors Applications

HONORS/FELLOWSHIPS/AWARDS

[2022 Institute of Physics, Outstanding Reviewer Award \(Nanotechnology\)](#)
[2022 Institute of Physics, Outstanding Reviewer Award \(Journal of Physics D: Applied Physics\)](#)
[2021 Institute of Physics, Outstanding Reviewer Award \(Journal of Physics D: Applied Physics\)](#)
Turkish Ministry of National Education Fellowship for Graduate Studies Abroad (2012-2021)
Honor Student – Erciyes University (2008)

CERTIFICATES

CompleteEASE Data Analysis Short Course (J.A. Woollam, Ellipsometry, 2020, Orlando, FL)
Training of Trainers Certificate Program (Gazi University, June 2023, Ankara Türkiye)

RESEARCH PUBLICATIONS

JOURNAL PUBLICATIONS

- Partha Mukhopadhyay, **Isa Hatipoglu**, Ymir K. Frodason, Joel B. Varley, Martin S. Williams, Daniel A. Hunter, Naresh K. Gunasekar, Paul R. Edwards, Robert W. Martin, Feng Wu, Akhil Mauze, James S. Speck, and Winston V. Schoenfeld, "Role of defects in ultra-high gain in fast planar tin gallium oxide UV-C photodetector by MBE", *Appl. Phys. Lett.* 121, 111105 (2022) <https://doi.org/10.1063/5.0107557>
- **Isa Hatipoglu**, Daniel A. Hunter, Partha Mukhopadhyay, Martin S. Williams, Paul R. Edwards, Robert W. Martin, Winston V. Schoenfeld, and G. Naresh-Kumar, "Correlation

between deep-level defects and functional properties of β -(Sn_xGa_{1-x})₂O₃ on Si photodetectors", Journal of Applied Physics 130, 204501 (2021)
<https://doi.org/10.1063/5.0068186>

- **Isa Hatipoglu**, Partha Mukhopadhyay, Fikadu Alema, Tamil S Sakthivel, Sudipta Seal, Andrei Osinsky, Winston V. Schoenfeld "Tuning the responsivity of monoclinic solar-blind photodetectors grown by metal-organic chemical vapor deposition." Journal of Physics D: Applied Physics 53.45 (2020): 454001 <https://doi.org/10.1088/1361-6463/aba313>
- Mukhopadhyay, P., **Hatipoglu, I.**, Sakthivel, T.S., Hunter, D.A., Edwards, P.R., Martin, R.W., Naresh-Kumar, G., Seal, S. and Schoenfeld, W.V. (2021), High Figure-of-Merit Gallium Oxide UV Photodetector on Silicon by Molecular Beam Epitaxy: A Path toward Monolithic Integration. Adv. Photonics Res., 2: 2000067. <https://doi.org/10.1002/adpr.202000067>
- **Under Review:** Daniel A Hunter, Naresh Gunasekar, Paul R. Edwards, Olha Makydonska, F. C-P. Massabuau, **Isa Hatipoglu**, Partha Mukhopadhyay, Winston V Schoenfeld, Robert W. Martin, Tin gallium oxide epilayers on different substrates: optical and compositional analysis. Journal of Applied Physics

INVITED TALKS:

- **Hatipoglu, Isa** " Kristal kusur mühendisliği: Ga₂O₃-tabanlı UV-C fotodedektörlerin işlevsel cihaz özelliklerinin kontrolü." 27. Yoğun Madde Fiziği Ankara Toplantısı (YMF27), ODTU, Ankara, Türkiye, December 16, 2022

CONFERENCE PROCEEDINGS/PRESENTATIONS:

- Hunter, D., Gunasekar, N. K., Edwards, P. R., Massabuau, F., **Hatipoglu, I.**, Mukhopadhyay, P., ... & Martin, R. W. (2023, March). Tin/gallium oxide alloying probed using X-ray microanalysis and cathodoluminescence (Conference Presentation). In Oxide-based Materials and Devices XIV (p. PC124220C). SPIE.
- **Hatipoglu, Isa**, and Arie Nakhmani. "Unsynchronized scanning with a low-cost laser range finder for real-time range imaging." Videometrics, Range Imaging, and Applications XIV. Vol. 10332. International Society for Optics and Photonics, 2017.
- **Hatipoglu, I.**, Mukhopadhyay P., Ozcelik S., Schoenfeld V.W. "Towards High-Quality Indium Gallium Oxide on c-Sapphire UV-C Photodetectors by PAMBE" Ulusal Optik, Elektro-Optik ve Fotonik Çalıştayı, 2022

SERVICE TO THE SCIENTIFIC COMMUNITY AND PROF. DEVELOPMENT

- **President of IEEE Photonics Society Orlando Section Chapter (2019-2021)**
 - Demonstrated successful leadership and organized many impactful scientific talks for Orlando Section including several local universities and professionals
 - The chapter received Largest Member Increase Award by IEEE Photonics Society in 2020
- **Reviewer for scientific journals:** Applied Physics Letters, 2D Materials, Semiconductor Science and Technology, Materials Science in Semiconductor Processing, Journal of Physics D: Applied Physics, Nanotechnology, Journal of Alloys and Compounds, Physica Scripta, Flexible and Printed Electronics
- **Professional Memberships** IEEE, OPTICA, SPIE