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Dr. Md Rejvi Kaysir
Professor
Research Area*Semiconductor and Optical devices modeling, * Fiber optic sensors, *Lasers, *HEMTs, * Fabrication and characterization of both optical and semiconductor devices.

Biography

Welcome to my Web page! Motivated students (both UG and PG) are welcome to my "PHOTONICS RESEARCH GROUP". Please contact me through email. I am also looking for potential collaboration with my research group. Feel free to knock me for ongoing research projects. >> Dr. Md. Rejvi Kaysir is a Professor and Director of the "PHOTONICS RESEARCH GROUP" in the Department of Electrical and Electronic Engineering (EEE) at the Khulna University of Engineering & Technology (KUET), Bangladesh. In 2021, He joined the University of WATERLOO, Canada as a Postdoctoral Research Fellow and worked with Prof. Dayan Ban and Prof. Mahla Poudineh (IDEATION LAB). He obtained his Ph.D. from the Institute of Photonics and Optical Science (IPOS) group at the University of Sydney, Australia (2017). After finishing his Ph.D., he took up a post-doctoral position with the School of Physics, University of Sydney, Australia. He received his B.Sc. and M.Sc. Engineering degrees in EEE from KUET, Khulna, Bangladesh in 2009 and 2012, respectively. His research interest includes biosensors, wearable sensors, laser photonics, solar concentrators, modeling, and fabrication of optoelectronic devices.

Education

Ph. D. in Science
The University of Sydney,Australia(2013-2017)
Thesis Title: **Novel luminescent solar concentrator utilizing stimulated emission**
Supervisors: Prof. Simon Fleming, and Hon. Prof. Alexander Argyros
M. Sc. in Electrical and Electronic Engineering
Khulna University of Engineering and Technology (KUET),Bangladesh(2010-2012)
Thesis Title: **Theoretical performance analysis of InN-based double channel high electron mobility transistors (DHEMTs)**
B. Sc. in Electrical and Electronic Engineering
Khulna University of Engineering and Technology (KUET),Bangladesh(2004-2009)
Postdoctoral Research Associate
The University of Sydney,Australia(2016-2017)
Thesis Title: **Wearable Sensor**
NSW Government funded Project
Postdoctoral Research Fellow
University of Waterloo,Canada(2021-2022)
Thesis Title: **Noninvasive Glucose sensing using Photoacoustic Spectroscopy**

Research Interest

***Semiconductor and Optical devices modeling, * Fiber optic sensors, *Lasers, *HEMTs, * Fabrication and characterization of both optical and semiconductor devices.**

Publication

Books

Journals

22. M. R. Kaysir, J. Song, A. Aloraynan, S. Rasseland D. Ban, "Progress and Perspectives of Mid-Infrared Photoacoustic Spectroscopy for Non-Invasive Glucose Detection," ***Biosensors*** , MDPI, vol. 13, no.7, pp.1-20, 2023 .

21. E. Nahid, M. J. Islam, M. R. Kaysir, S. S. Hossainand M. S. Rahman, "Au-strip structure dependent performance investigation of D-shaped SPR sensors for biosensing applications," ***Results in Optics*** , Elsevier, vol. 12, no.100460, 2023 .

20. A. Aloraynan, S. Rassel, M. R. Kaysirand a. D. Ban, "Dual quantum cascade lasers for noninvasive glucose detection using photoacoustic spectroscopy," ***Scientific Reports*** , Nature, vol. 7927, no.13, 2023 .

19. F. Keyvani, H. Zheng, M. R. Kaysir, D. F. Mantaila, F. A. RahmanJ. Quadrilatero, D. Ban, and M. Poudineh, "A Hydrogel Microneedle Assay Combined with Nucleic Acid Probes for On-site Detection of Small Molecules and Proteins," ***Angewandte Chemi - International Edition*** , Wiley, no.e202301624, 2023 .

18. S. Rassel, M. R. Kaysir, A. Aloraynanand a. D. Ban, "Non-invasive blood sugar detection by cost-effective capacitance spectroscopy," ***Journal of Sensors and Sensor Systems*** , MPDI, vol. 12, pp.21-36, 2023 .

17. T. I. PALASH, M. R. KAYSIR, M. J. ISLAM, S. B. AZIZand T. N. M. a. N. AKTHER, "IN-SILICO PERFORMANCE INVESTIGATION OF NANOPARTICLE-ASSISTED PHOTO THERMAL ABLATION," ***Journal of Biological Systems*** , World Scientific, pp.1-21, 2022 .

16. M. Rahman, K. R. Islam, M. R. Islam, M. J. Islam, M. R. KaysirM. Akter, M. A. Rahman, and a. S. Alam, "A Critical Review on the Sensing, Control, and Manipulation of Single Molecules on Optofluidic Devices," ***Micromachines*** , MPDI, vol. 13, no.6, pp.968, 2022 .

14. Y. Z. Chowdhury, M. J. Islam, M. R. Kaysirand J. A. Akhi, "Selection of metals for the optimal performance of metamaterial based hollow core fibers for terahertz applications," ***Sensing and Bio-Sensing Research*** , Elsivier, vol. 32, no.100411, pp.1-6, 2021 .

13. A. K. Ajad, J. Islam, R. Kaysirand J. Atai, "Highly sensitive bio sensor based on WGM ring resonator for hemoglobin detection in blood samples," ***Optik*** , Elsivier, no.166009, 2020 .

12. T. Akand, M. J. Islam and M. R. Kaysir, "Low loss hollow-core optical fibers conjoining tube lattice and revolver structures," ***Results in Optics*** , Elsivier, vol. 1, pp.1-7, 2020 .

11. M. S. Hasan, I. M. Mehedi, S. F. Reza, M. R. Kaysirand M. R. Islam, "Analytical Investigation of Activation Energy for Mg-doped p-AlGaN," ***Optical and Quantum Electronics*** , Springer, vol. 52, pp.1-10, 2020 .

10. H. Rafi and M. K. a. M. Islam, "Air-hole attributed performance of photonic crystal fiber-based SPR sensors," ***Sensing and Bio-Sensing Research*** , Elsevier, vol. 29, pp.1-7, 2020 .

9. M. R. Kaysir, S. Fleming and a. A. Argyros, "Gain investigation of Perylene Red doped PMMA for stimulated luminescent solar concentrator," ***Applied Optics*** , OSA, vol. 57, no.10, pp.2459-2466, 2018 .

8. M. R. Kaysir, S. Fleming, R. MacQueen, T. Schmidtand a. A. Argyros, "Luminescent solar concentrators utilizing stimulated emission," ***Opt. Express*** , OSA, vol. 24, no.6, pp.A497-A505, 2016 .

7. M. R. Kaysir, S. Fleming, R. MacQueen, T. Schmidtand a. A. Argyros, "Optical gain characterization of Perylene Red-doped PMMA for different pump configurations," ***Applied Optics*** , OSA, vol. 55, no.1, pp.178-183, 2016 .

6. M. R. Kaysir, S. Fleming and a. A. Argyros, "Modeling of stimulated emission based luminescent solar concentrators," ***Opt. Express*** , OSA, vol. 24, no.26, pp.A1546-A155, 2016 .

5. M. Islam, M. R. Kaysir, M. Islam, A. Hashimotoand a. A. Yamamoto, "MOVPE Growth of InxGa1âˆ'xN (x âˆ¼ 0.4) and Fabrication of Homo-junction Solar Cells," ***Journal of Materials Science & Technology*** , ScienceDirect, vol. 29, no.2, pp.128-136, 2013 .

4. M. R. Kaysir and M. Islam, "Theoretical Charge Control Investigations in InN-Based Quantum Well Double Heterostructure High Electron Mobility Transistors (QW-DHEMTs)," ***Advanced Materials Research (AMR)*** , Scientific.Net, vol. 403-408, pp.52-58, 2011 .

3. M. Hassan, M. R. Kaysir, M. Islam, M. I. a. A. G. Bhuiyanand A. Yamamoto, "2DEG properties in InGaN/InN/InGaN-based double channel HEMTs," ***Physica Status Solidi (C)*** , Wiley, vol. 7, pp.1997-2000, 2010 .

2. M. R. Kaysir, M. Islam, M. Islam, M. Rahmanand a. M. K. Alamgir, "Design and Implementation of a Novel Multichannel Temperature Data Logger with Thermal Protection," ***CJEEE*** , vol. 2, no.21-24, 2011 .

1. M. Islam, M. Habibullah, S. k. H. Haque, a. M. M. Hossainand a. M. R. Kaysir, "High Efficiency AlAs/GaAs/Ge Lattice Matched Multijunction Solar Cells," ***GJREE*** , Global Journals Inc. (USA), vol. 11, no.1, 2011 .

Conference

30. F. Keyvani, H. Zheng, M. R. Kaysir, D. Mantailaand a. M. Poudineh, "A Universal Hydrogel Microneedle for on-Site Detection of Small Molecules, Proteins, and Ribonucleic Acids," ***243rd ECS Meeting***, May 28-June 2, 2023 .

29. , "Effects of Multifunctional Interlayers on the Performance of Perovskite Solar Cells," ***2023 International Conference on Electrical, Computer and Communication Engineering (ECCE)***, IEEE, 23-25 February 2023 .

26. I. Arin, M. Nahiduzzaman and M. J. I. a. M. R. Kaysir, "Effect of the PMMA Layer Thickness on the Performance of Lab-on-fiber Radiation Dosimeter," ***2022 International Conference on Advancement in Electrical and Electronic Engineering (ICAEEE)***, IEEE, 2022 , pp.1-5.

25. Z. Tasnim and M. J. I. a. M. R. Kaysir, "Effect of Interlayers on the Performance of Organic Photovoltaic Cells," ***2021 5th International Conference on Electrical Information and Communication Technology (EICT)***, IEEE, 17-19 Dec. 2021 , pp.1-6.

24. S. Tasnim, M. R. Kaysir and M. J. Islam, "Effect of Plasmonic Silver Nanoparticles Layer on the Performance of Organic Photovoltaic Cell," ***International Conference on Electronics, Communications and Information Technology 2021 (ICECIT 2021)***, IEEE, September 14-16, 2021 , pp.1-4.

20. T. Akand, M. J. Islam and M. R. Kaysir, "Effect of capillary parameters on the performance of modified negative curvature hollow core fibers," ***2020 11th International Conference on Electrical and Computer Engineering (ICECE)***, IEEE, 17-19 Dec. 2020 , pp.1-4.

19. A. K. Ajad, M. J. Islam and M. R. Kaysir, "Numerical analysis of Mach-Zehnder interferometer based optical sensors incorporating WGM ring resonator," ***2020 11th International Conference on Electrical and Computer Engineering (ICECE)***, IEEE, 17-19 Dec. 2020 , pp.1-4.

18. S. P. Tonmoy and M. J. I. a. M. R. Kaysir, "Investigation of the Carrier Dynamics and Electrical Pumping Behavior of InAs/GaAs Quantum Dot Lasers," ***2020 2nd International Conference on Advanced Information and Communication Technology (ICAICT)***, IEEE, 2020 , pp.398-403.

17. T. Akand and M. J. I. a. M. R. Kaysir, "Low loss hollow core optical fibers combining lattice and negative curvature structures," ***IEEE REGION 10 SYMPOSIUM (TENSYMP) 2020***, IEEE, 5th â€“ 7th June, 2020 , pp.1-4.

16. A. Faysal, T. Nahar, N. Nawarand M. R. K. a. M. J. Islam, "Invest igat ion of Opt imal Concent rat ion of QDs on the Per formance of QD-Based Luminescent Solar Concent rators," ***IEEE REGION 10 SYMPOSIUM (TENSYMP) 2020***, IEEE, 5th â€“ 7th June, 2020 , pp.1-4.

15. M. N. Sarker, M. R. Kaysir and M. J. Islam, "Modal analysis of capillary optical fibers and their possible applications in sensing," ***2019 IEEE International Conference on Telecommunications and Photonics (ICTP)***, IEEE, 28-30 Dec. 2019 , pp.1-4.

14. , "Study on the Strain Dependent Performance of CdTe:Te-based Multijunction Solar Cells," ***2019 5th International Conference on Advances in Electrical Engineering (ICAEE)***, IEEE, 26-28 Sept. 2019 , pp.850-854.

13. A. Y. Rabbi, M. R. Kaysir and M. J. Islam, "Numerical Modeling to evaluate the performance of FBG-based Strain Sensors," ***2019 International Conference on Computer, Communication, Chemical, Materials and Electronic Engineering (IC4ME2)***, IEEE, 11-12 July 2019 , pp.1-4.

12. M. J. Haque, M. R. Kaysir, M. J. Islamand M. R. Islam, "State Modeling to Investigate the CW Pumping Behaviour of Organic Solid-State Lasers," ***2019 International Conference on Computer, Communication, Chemical, Materials and Electronic Engineering (IC4ME2)***, IEEE, 11-12 July 2019 .

8. M. R. Kaysir, A. Stefani, R. Lwinand a. S. Fleming, "Measurement of weak low frequency pressure signal using stretchable polyurethane fiber sensor for application in wearables," ***3rd International Conference on Electrical Information and Communication Technology (EICT)***, IEEE, 7-9 December 2017 .

7. M. R. Kaysir, A. Stefani, R. Lwinand a. S. Fleming, "Flexible optical fiber sensor based on polyurethane," ***The Pacific Rim Conference on Lasers and Electro-Optics (CLEO-Pacific Rim2017)***, OSA, 31 July - 4 August 2017 .

6. M. R. Kaysir, S. Fleming, R. MacQueen, T. Schmidtand a. A. Argyros, "Characterization of optical gain in Perylene Red-doped PMMA," ***Australian and New Zealand Conference on Optics and Photonics 2015 (ANZCOP 2015)***, Engineers Australia, 2015 , pp.86-88.

5. M. R. Kaysir, S. Fleming, R. MacQueen, T. Schmidtand a. A. Argyros, "Luminescent solar concentrator improvement by stimulated emission," ***Proc. SPIE 9668, Micro+Nano Materials, Devices, and Systems***, 2015 , pp.96682S.

2. M. S. Islam, M. S. Iqbal, M. Kaysir, S. M. H. Muhmud, A. E. KabirA. G. Bhuiyanand Yamamoto, "High Efficiency InGaN-based quantum well solar cell," ***6th International Conference on Electrical & Computer Engineering (ICECE-2010)***, IEEE, 18-20 December (2010) .