



Dr. Ayan Mustafa Khan

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Google Scholar Citation: <https://scholar.google.com/citations?user=DzwURkkAAAAJ&hl=en&authuser=1> ,

Orcid Id: <https://orcid.org/0000-0003-4621-2036>,

Scopus: <https://www.scopus.com/authid/detail.uri?authorId=57195635612> ,

Research gate: <https://www.researchgate.net/profile/Am-Khan-3>

linked in: https://www.linkedin.com/feed/?trk=guest_homepage-basic_google-one-tap-submit

PROFILE

- I am a hardworking, honest individual.
- I am a good timekeeper, always willing to learn new skills.
- I am friendly, helpful and polite, have a good sense of humour.
- I am able to work independently in busy environments and also within a team setting.
- I am outgoing and tactful, and able to listen effectively when solving problems.

RESEARCH INTEREST:

- Very Large Scale Integration
- Optical Electronics
- Polymer Electronics
- Nano Technology
- Internet Of Things

SUMMARY OF RESEARCH ACCOMPLISHMENT:

Accuracy, high frequency and speed are some basic requirements of present day devices. While having new era of electronics different tools are being used to have such parameters and features to fulfil the need of the hour. A remarkable growth has been seen in this area of research. Researchers talked about the devices, their lasing structure, quantum wells, high performance, good wavelength etc. They have also found a concept of wafer structure which was used to measure optical loss within the material system along with other important characteristics and features. The central idea of this research work is to build an environment to deal with the heterostructures consisting of various material system through modelling and simulation or can be proposed via laser structures. The nano heterostructures of different semiconducting materials are analysed and accordingly simulated to form various characteristics according to the requirement. The entire thesis work gives the idea to form optical properties of nano scale heterostructures with the help of K.P method. The main catch of this study is to design a type-II nano-heterostructure for the wavelength of 1.55 μm , which has a capability for emission of radiations in such conditions. The design is based on a new approach to propose type-II “W” shaped InAlAs/InGaAs/GaAsSb nanoscale heterostructure for simulating optical gain characteristics with the help k.p method in a theoretical way by solving a 5×5 Luttinger-Kohn Hamiltonian in heterostructure in order to determine carrier localities.

PROFESSIONAL MEMBERSHIP: No

COURSE TAUGHT:

- Basic Electronics
- Digital Electronics
- Electronic Devices and Circuits
- Signal and Systems
- Internet of Things
- Communication Systems
- Computer Organization and Architecture
- Microprocessor
- Antenna and Wave Propagation
- Integrated Circuit
- Telemetry
- Digital Signal Processing
- Analog MOS
- VLSI Design
- VLSI Technology

ADMINISTRATIVE/DEPARTMENTAL RESPONSIBILITY

- University Swayam Coordinator (MOOCs Coordinator)
- Centralized sub criteria 3.4.7 in charge
- Departmental Exam Coordinator
- Departmental Criteria 3 In charge

STUDENTS SUPERVISION

- B.Tech
- M.Tech
- B.C.A
- M.C.A
- Ph.D

PUBLISHED/GRANT PATENTS

No

PUBLISHED/ACCEPTED SCI/SCOPUS RESEARCH PAPERS

- S. G. Anjum, Sandhya K., A. B. Khan, **A. M. Khan**, M. J. Siddiqui, P. A. Alvi, “Effects of Variation of Quantum Well Numbers on Gain Characteristics of Type-I InGaAsP/InP Nano-heterostructure”, *BEEI, Bulletin of Electrical Engineering and Informatics*, DOI: [10.11591/eei.v6i3.638](https://doi.org/10.11591/eei.v6i3.638)

- **A.M. Khan**, Meha Sharma, M.I. Khan, Sandhya Kattayat, Garima Bhardwaj, M. Abu-Samak, S.H. Saeed, P.A. Alvi, “Optical gain characteristics of a novel InAlAs/InGaAs/GaAsSb type-II nano- heterostructure”, *Optik - International Journal for Light and Electron Optics* 183 (2019) 842–848, <https://doi.org/10.1016/j.ijleo.2019.01.095>, Received 2 January 2019; Accepted 26 January 2019
- M. Imran Khan; **A. M. Khan**, Sandhya Kattayat, Saurabh Dalela, Shalendra Kumar, P.A.Alvi, “Uniaxial Ultra-High Pressure Dependent Tuning of Optical Gain of W-shaped Type-II GaAsSb/InGaAs/InAlAs Nano-Heterostructure”, “*Optik - International Journal for Light and Electron Optics*”, Accepted on 23 Dec 2019, Published on February2021, Ref. No.: IJLEO-D-19-04517, <https://doi.org/10.1016/j.ijleo.2019.164121>
- 4. Md Riyaj, JP Vijay, **A.M. Khan**, Sandhya Kattayat, Savaş Kaya, M Ayaz Ahmad, Shalendra Kumar, PA Alvi, Amit Rathi, “Band dispersion and optical gain calculations of staggered type GaAs_{0.4}Sb_{0.6}/In_{0.7}Ga_{0.3}As/GaAs_{0.4}Sb_{0.6} nano-heterostructure under electric field and [100] strain”, *Superlattices and Microstructures*, Received 12 June 2020, Revised 3 August 2020, Accepted 31 August 2020, Available online 9 October 2020, <https://doi.org/10.1016/j.spmi.2020.106694>

PAPER PUBLISHED IN INTERNATIONAL CONFERENCES

- **M. Khan**, Sandhya Kattayat , Sandeep Sharma , S. H. Saeed, P. A. Alvi, “Tuning of Gain Spectra in GaAsSb/InGaAs Heterostructure”, 3rd International Conference on condensed matter and Applied Physics (ICC-2019), Organized by Government Engineering College, Bikaner, Rajasthan, India, **SCI, Scopus Conference, American Institute of Physics (AIP)** proceedings , 14-15 October,2019, Published on 05 May 2020, <https://doi.org/10.1063/5.0001122>
- **A. M. Khan**, Garima Bhardwaj, M. Abu-Samak, S. H. Saeed, P. A. Alvi, “Simulating 1.55 μm Optical Gain in Type-II InAlAs/InGaAs/GaAsSb Nanoscale Heterostructure”, International Conference on Startup Ventures: Technology Developments and Future Strategies (SV-TDFS) at Manipal University Jaipur, **Scopus conference, IOP science** proceedings, 8-9 October 2018, [doi:10.1088/1757-899X/594/1/012003](https://doi.org/10.1088/1757-899X/594/1/012003)
- M. I. Khan , Sandhya K. , **A. M. Khan** , P. A. Alvi, “Gain Characteristics of InGaAsN Quantum Well Heterostructures with GaAs and InP Substrates”, International Conference on Startup Ventures: Technology Developments and Future Strategies (SV-TDFS) at Manipal University Jaipur, **Scopus conference, IOP science** proceedings, 8-9 October 2018, [doi:10.1088/1757-899X/594/1/012044](https://doi.org/10.1088/1757-899X/594/1/012044)

PUBLISHED NON-SCI-SCOPUS BUT PEER REVIEWED RESEARCH PAPERS

- Author's Name: Ayan Mustafa Khan
Topic: "Generation Of ASK and FSK from Digitally Controlled CCCII+ Oscillator"
Journal Name: *The International Journal Of Engineering And Science (IJES)*
||Volume||2 ||Issue|| 10||Pages|| 19-22||2013|| ISSN(e): 2319 – 1813 ISSN(p): 2319 – 1805

- Author's Name: A M Khan, M S Kidwai Topic: “Enhancement in oscillating frequency from FSK signal using CCCII+ Oscillator”, Journal Name: IJETTCS, Volume 3, Issue 3, May- June 2014
- Paper Accepted in *International Journal of Modern Engineering Research (IJMER)*, Topic: “Generation Of ASK and FSK from Digitally Controlled CCCII+ Oscillator “
- Paper accepted in “ The 2nd International Conference on Scientific Research and Studies (ICSRS 2014)”, “Generation Of ASK and FSK from Digitally Controlled CCCII+ Oscillator”, MACAU , January 22-23, 2014
- Author’s Name: *Ayan Mustafa Khan, Mohd. Suhaib Kidwai*, Analysis of THD for FSK and Digitized CCCII Oscillator, IJSART, Volume 1, Issue 9, September, 2015
- Author’s Name: *Mohd. Suhaib Kidwai, Ayan Mustafa Khan*, “ Use of Mathematical Concept of recurrence in Detecting Epilepsy”, IJSART, Volume 2, Issue 3, March, 2016
- Author’s Name: *Ayan Mustafa Khan, Mohd Suhaib Kidwai*, “A review of total harmonic distortion in an oscillator and modulating waveforms from digitally controlled cccii+ oscillator”, IJSART, Volume 2, Issue 3, March, 2016
- Author’s Name, “*Ayan Mustafa Khan*”, “*Dr. Syed Hasan Saeed*”, “*Dr. Mohd. Samar Ansari*”, “A Review on Carbon Nano Tubes Field Effect Transistors in Different Era with Related Applications”, IJIREEICE, volume 4, Issue 10, October, 2016

BOOK EDITED/ AUTHORED

Authored a book named, “ Electronic Applications on NanoScale Heterostructures”, published by Aargon Press. ISBN : 978-93-94070-32-5

BOOK CHAPTERS
