

Sakhawat Hussain

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Google Scholar link: <https://scholar.google.com/citations?user=5nYuHVYAAAAJ&hl=en>

Education

Doctor of Philosophy (Ph.D.) in Physics

December, 2014

University of Nice Sophia Antipolis, France

Nice Sophia Antipolis, France

Supervisor: Professor Philippe Vennéguès

Co-supervisor: Dr. Benjamin Damilano

Committee: Dr. Guy Fullet, Dr. Catherine Bougeroi, Dr. Nikolay Cherkashin, Dr. Amiélie Dussaigne, Dr. Robert Martin

Dissertation Title: Structural and optical characterization of green-yellow light emitting devices with high indium concentrated (In,Ga)N quantum wells.

Master of Science (M.Sc.)

October, 2009

in Applied Physics, Electronics and Communication Engineering

Dhaka, Bangladesh

Department of Electrical and Electronic Engineering (Former Department of Applied Physics, Electronics and Communication Engineering), University of Dhaka, Bangladesh

Result: Secured 4th position out of 35 students

Bachelor of Science (B.Sc.)

March, 2008

in Applied Physics, Electronics and Communication Engineering

Dhaka, Bangladesh

Department of Electrical and Electronic Engineering (Former Department of Applied Physics, Electronics and Communication Engineering), University of Dhaka, Bangladesh

Result: Secured 2nd position out of 45 students

Employment History

Full-time Faculty Positions

- Associate Professor, Department of Electrical and Electronic Engineering, University of Dhaka, Bangladesh. October 2018 – Present
- Assistant Professor, Department of Electrical and Electronic Engineering, University of Dhaka, Bangladesh. December 2013 – October 2018
- Lecturer, Department of Electrical and Electronic Engineering, University of Dhaka, Bangladesh. November 2009 – December 2013
- Lecturer, Department of Textile Engineering, Southeast University, Dhaka, Bangladesh. May 2009 - November 2009

Part-time Faculty Positions

- Associate Professor, Department of Electrical and Computer Engineering, North South University, Dhaka, Bangladesh. October 2018 – Present
- Associate Professor, Department of Robotics and Mechatronics Engineering, University of Dhaka, Bangladesh. July 2019 – December 2019, November 2020 – May 2021
- Assistant Professor, Department of Electrical and Computer Engineering, North South University, Dhaka, Bangladesh. September 2017 – October 2018
- Assistant Professor, Department of Electrical and Computer Engineering, East West University, Dhaka, Bangladesh. September 2015 – August 2017
- Lecturer, Department of Computer Science and Engineering, University of Dhaka. February 2011- August 2011

Honors

- Erasmus Mundus Mobility with Asia (EMMA) Scholarship for Ph.D. Studies
- Science Dean's Award 2008, for outstanding result in B.Sc. Honors from University of Dhaka
- Merit-based scholarship, University of Dhaka, 2000-2004
- Full Tuition fee waiver for the study at the University of Dhaka, 2000-2004

Teaching Experiences

Lecturer to Associate Professor, Department of Electrical and Electronic Engineering, University of Dhaka, Bangladesh

November 2009 – Present
Dhaka, Bangladesh

- **Instructor of Theory courses:**
 - EEE - 4231: Semiconductor Technology
 - EEE - 3231: Optoelectronics
 - EEE - 2105: Physical Electronics and Semiconductor Theory
 - PHY - 1101: Electricity and Magnetism
 - EEE - 3103: Microprocessor and Interfacing
 - EEE - 1101: Electrical Circuit Analysis I
 - APECE- 206: Heat Engineering and Vacuum Techniques
- **Instructor of Laboratory courses:**
 - PHY - 1102: Physics Laboratory I
 - PHY - 1202: Physics Laboratory II
 - EEE - 1102: Computer Aided Engineering Drawing
 - EEE - 2202: Analog Electronics Laboratory
 - EEE - 3106: Communication laboratory
- **Supervision of B.Sc. Project/ M.Sc. Thesis works**
 - Supervising several students in each academic year.
- **My role:**
 - To teach above mention courses in different classes (70 students in each class)
 - To conduct laboratory classes in different sections (25 students in each section).
 - To supervise 2 to 4 students for B.Sc. projects works in each academic year.
 - 1 or 2 M.Sc. thesis students in each academic year.

As Part-time faculty

Associate Professor, Department of Electrical and Computer Engineering, North South University, Dhaka, Bangladesh. October 2018 – Present
Dhaka, Bangladesh

- **Instructor of Theory Courses:**
 - I. CSE - 331: Microprocessor Interfacing and Embedded System
 - II. EEE - 214: Electrical Circuits II
- **Supervisor of the Laboratory Courses:**
 - I. CSE - 331L: Microprocessor Interfacing and Embedded System laboratory
 - II. EEE - 214L: Electrical Circuits II Laboratory

Associate Professor, Department of Robotics and Mechatronics Engineering, University of Dhaka, Bangladesh. July 2019 – Dec. 2019
and
Nov. 2020 – May 2021
Dhaka, Bangladesh

- **Instructor of Theory Courses:**
 - I. RME - 2204: Electrical Machines
 - II. RME - 5205: Nanotechnology and nanofabrication

Assistant Professor, Department of Electrical and Computer Engineering, North South University, Dhaka, Bangladesh. Sept. 2017 – Oct. 2018
Dhaka, Bangladesh

- **Instructor of Theory Courses:**
 - I. EEE - 111: Analog Electronics I
 - II. EEE - 141: Electrical Circuits I
- **Supervisor of Laboratory courses:**
 - I. EEE - 111L: Analog Electronics I Laboratory
 - II. EEE - 141L: Electrical Circuits I Laboratory

Assistant Professor, Department of Electrical and Computer Engineering, East West University, Dhaka, Bangladesh. Sep. 2015 – Aug. 2017
Dhaka, Bangladesh

- **Instructor of Theory Courses:**
 - I. ECE - 532: Telecommunication Network Planning and Optimization
 - II. ECE - 514: Optical Fiber Communication
 - III. CSE - 101: Introduction to Computer

Lecturer, Department of Computer Science and Engineering, University of Dhaka, Bangladesh. Feb. 2011- Aug. 2011
Dhaka, Bangladesh

- **Instructor of Theory Course:**
 - I. PHY - 1104: Physics
- **Instructor of Laboratory course:**
 - I. EEE - 1113: Electrical Circuits Lab

Research Experiences

As Assistant and Associate Professor, at Department of Electrical and Electronic Engineering, University of Dhaka, Bangladesh. Jan. 2015-Present
Dhaka, Bangladesh

- **Research field:** Microwave Engineering, Solar cell, Light Emitting Diode (LED) structure
- **Research topics:** Micro-strip patch antenna, CZTS Solar cell, III-Nitride material LED structure

- **Software used:** CST Microwave Studio, 1D-SCAPS software, Homemade software (France)

As Ph.D. student, at CNRS-CRHEA, University of Nice Sophia Antipolis,
France

Nov. 2011 – Dec. 2014
Nice-Sophia Antipolis, France

- **Research field:** Opto-electronics
- **Research topics:** Structural and Optical characterization of Group III-Nitride materials light emitting diode structures.
- **Characterization methods used:** X-ray Diffraction (XRD), Energy dispersion X-ray (EDX), Atomic Force Microscopy (AFM), Scanning/Transmission Electron Microscopy (S/TEM), Room temperature Photo-luminescence (RT-PL), Electro-luminescence (EL).

As Lecturer, at Department of Electrical and Electronic Engineering,
University of Dhaka

Nov. 2009 –Oct. 2011
Dhaka, Bangladesh

- **Research field:** Microwave Engineering, Communication Engineering
- **Research topic:** Micro-strip patch antenna and filter; Orthogonal Frequency Division Multiple Access (OFDMA) technique
- **Software used:** CST Microwave Studio Software, MATLAB software,

Publications

1. **S. Hussain**, Md. T. Prodhan and Md. M. Rahman, *Simulation analysis to optimize the performance of homojunction p-i-n $In_{0.7}Ga_{0.3}N$ solar cell*, Semiconductor Physics, Quantum Electronics and Optoelectronics (SPQEO), Vol. 24 Issue 2, pp 192-199 (2021).
<https://doi.org/10.15407/spqeo24.02.192>
2. **S. Hussain**, Md. M. Rahman and Md. T. Prodhan, *Modeling of $In_{0.17}Ga_{0.83}N/In_xGa_{1-x}N/Al_yGa_{1-y}N$ light emitting diode structure on $ScAlMgO_4$ (0001) substrate for high intensity red emission*, Semiconductor Physics, Quantum Electronics and Optoelectronics (SPQEO), Vol. 23, Issue 4, pp 408-414 (2020).
<https://doi.org/10.15407/spqeo23.04.408>
3. Sadiya Afrin Swarna, Salma Faria, **Sakhawat Hussain**, Anis Ahmed, *Novel Microstrip Patch Antenna with Modified Ground Plane for 5G Wideband Applications*, Global Journal of Researchers in Engineering: F (GJRE: F), Vol. 19, Issue 1, pp 9-15, (2019).
<https://engineeringresearch.org/index.php/GJRE/article/view/1909>
4. Rakib Hasan, Mustakim Ahmed Rahat, **Sakhawat Hussain**, Anis Ahmed, *Resonance Characteristics Enhancement of Slot-loaded Microstrip Patch Antenna for GPS Application*, Global Journal of Researchers in Engineering: F (GJRE: F), Vol. 18, Issue 1, pp 23-29, (2018).
<https://engineeringresearch.org/index.php/GJRE/article/view/1807>
5. **Sakhawat Hussain**, Tasnim Zerine and Md. Ashik Khan, *Design and Simulation to improve the structural efficiency of green light emission of $GaN/InGaN/AlGaIn$ light emitting diode*, Frontiers of Optoelectronics (2017), 10(4) :370-377.
<https://doi.org/10.1007/s12200-017-0705-9>
6. M.A. R. Ohi, M.S. Sadique, **S. Hussain** and A. Ahmed, *Design and Fabrication of Slot-Loaded Microstrip Patch Antenna at 2.45 GHz*, International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering (IJAREEIE), Vol. 6, Issue 3, (March 2017).
https://www.ijareeie.com/upload/2017/march/2A_Design.pdf
7. Kaddour Lekhal, **Sakhawat Hussain**, Philippe De Mierry, Philippe Vennéguès, Maud Nemoz, Jean-Michel Chauveau, Benjamin Damilano, *Optimized In composition and quantum well thickness for yellow-emitting $(Ga,In)N/GaN$ multiple quantum wells*, Journal of Crystal Growth 434 (2016) 25–29.

- <https://doi.org/10.1016/j.jcrysgro.2015.10.026>
8. K. Lekhal, B. Damilano, H. T. Ngo, D. Rosales, P. De Mierry, **S. Hussain**, P. Vennéguès and B. Gil, *Strain-compensated (Ga,In)N/(Al,Ga)N/GaN multiple quantum wells for improved yellow/amber light emission*, Applied Physics Letter **106**, 142101 (2015).
<http://dx.doi.org/10.1063/1.4917222>
 9. **Sakhawat Hussain**, Kaddour Lekhal, Hyonju Kim-Chauveau, Philippe Vennéguès, Philippe De Mierry and Benjamin Damilano, *Capping green emitting (Ga,In)N quantum wells with (Al,Ga)N: impact on structural and optical properties*, Semiconductor Science and Technology **29** (2014), 035016.
<https://doi.org/10.1088/0268-1242/29/3/035016>
 10. Benjamin Damilano, Hyonju Kim-Chauveau, Eric Frayssinet, Julien Brault, **Sakhawat Hussain**, Kaddour Lekhal, Philippe Vennéguès, Philippe De Mierry and Jean Massies, *Metal Organic Vapor Phase Epitaxy of Monolithic Two-Color Light-Emitting Diodes Using an InGaN-Based Light Converter*, Applied Physics Express **6** (2013), 092105.
<https://doi.org/10.7567/APEX.6.092105>
 11. Ibrahim Azad, **Sakhawat Hussain** and Rezaul Karim Mozumder, *Performance evaluation of different structured c band microstrip line bandpass filter*, International Journal of Electronics and Communication Engineering and Technology (IJECET), Vol. 3, Issue 2, (July- Sep. 2012), 148-163.
 12. **Sakhawat Hussain**, Imtiaz Ahmend and Shahida Rafique, *Performance analysis of OFDM techniques for different mobile wireless channels*, Journal of Bangladesh Electronics Society, **9** (1-2) 2009; 105-113.

Conference Paper/ Proceedings

1. Benjamin Damilano, Kaddour Lekhal, Hyonju Kim-Chauveau, **Sakhawat Hussain**, Eric Frayssinet, Julien Brault, Sébastien Chenot, Philippe Vennéguès, Philippe De Mierry, and Jean Massies, *'Monolithic white light emitting diodes using a (Ga,In)N-based light Converter'*, Proceedings of SPIE, Vol. 8986 89861G-1
2. Benjamin Damilano, Julien Brault, Eric Frayssinet, H.Kim-Chauveau, **Sakhawat Hussain**, Jean Massies, J.-Y. Duboz, Jean-Michel Lamy, R. Charash, Mahbub Akhter, B. Corbett, *'Combination of MOCVD and MBE growth techniques for green-yellow InGaN-based light emitting diodes and laser diodes'* ICMOVPE-XVI, at Busan Korea, May 2012.

Poster Presentation

1. **S. Hussain**, H. Kim-Chauveau, B. Damilano and P. Vennéguès, *Capping InGaN quantum wells with AlGaIn for high efficiency green emission*, Symposium L- Group III nitrides, E-MRS 2013 Spring Meeting –Strasbourg, France, May 27th - 31st, 2013.

Invited Speaker/Talk

1. *Photoluminescence Spectroscopy: Its' basic principle and different analytical techniques*, 8th June 2021, Central Analytical and Research Facilities (CARF) seminar room, Bangladesh Council of Scientific and Industrial Research (BCSIR), Dhaka, Bangladesh
2. *Design and Simulation to Improve the Efficiency of Green Light Emission of InGaN/GaN Light Emitting Diode Structure Using AlGaIn as Capping Layer*; The 3rd Conference of Bangladesh Crystallographic Association (BCA), 1-2 December 2016, Atomic Energy Center, Shahbagh, Dhaka, Bangladesh.
3. *Optimization of InGaN/GaN Multi Quantum Well Structure for High Efficiency Yellow-Green*

Emission; India-Bangladesh Structural Chemistry Conference (IBSCC) 2015; 18-19 September 2015, IISER Kolkata, West Bengal, India

4. *Capping InGaN quantum wells with AlGaIn for high efficiency green emission*, The 1st Conference of Bangladesh Crystallographic Association (BCA), 05 December 2013, Nabab Nawab Ali Chowdhury Senate Bhaban, University of Dhaka, Bangladesh.

Professional Activities

- Student Advisor, Department of Electrical and Electronic Engineering, University of Dhaka, Bangladesh. August 2021- present
- Program Committee Member, Fab Fest 2019, Fab Lab DU.
- Program Committee Member, International Conference on Material Science and Semiconductor Devices (ICMSSD) - 2018
- Program Committee Member, International Workshop on Artificial Intelligence & Applications (IWAIA) - 2017
- Deputy Sub-Project Manager, Building Fab Lab at University of Dhaka for Innovation and Invention, Higher Education Quality Enhancement Project (HEQEP), UGC, Bangladesh, Ministry of Education, Government of the People's Republic of Bangladesh. Jan. 2017- Sep. 2019

References

1. Professor Philippe Vennéguès
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