Md. Shahadat Hasan Sohel

CONTACT INFORMATION

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Department of Electrical and Electronic Engineering (EEE),
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RESEARCH INTERESTS

Photonics and Opto-electronics devices, Solid state devices, and Fabrication Technologies

EDUCATION

M.Sc. in Electrical and Electronic Engineering (Expected graduation date December, 2014)
Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh
Thesis: Design of GaN Based Multiple Frequency Emission Terahertz Quantum Cascade Laser (*Ongoing*)
Supervisor: Dr. Muhammad Anisuzzaman Talukder
CGPA: 4.00/4.00

B.Sc. in Electrical and Electronic Engineering (Graduation Date: April, 2012)
Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh
Thesis: Analysis of Effect of Temperature on Output Emission and Modeling of Gain Dispersion in Quantum Cascade Lasers
Supervisor: Dr. Muhammad Anisuzzaman Talukder
CGPA: 3.97/4.00 (Top **3%**)
Rank: 5/182

Higher Secondary Certificate (H.S.C.), 2006
Notre Dame College, Dhaka, Bangladesh
GPA: 5.00/5.00 (Top **3%**)

Secondary School Certificate (S.S.C.), 2004
Rajuk Uttara Model School, Dhaka, Bangladesh
GPA: 5.00/5.00 (Top **2%**)

ACADEMIC HONORS

- **Deans List Award** for academic excellence in all four levels, BUET
- **University Merit Scholarship** for academic excellence in all eight terms, BUET
- **Dhaka Education Board Scholarship** for excellence in the HSC examination, 2006
- **Dhaka Education Board Scholarship** for excellence in the SSC examination, 2004
- **Dhaka Education Board Junior Scholarship** for excellence in junior school exam, 2002

AWARDS

- *Champion*, Dhaka Divisional Math Olympiad, 2006
- *Second runner up*, National Math Olympiad, 2006

RESEARCH EXPERIENCE

Nanophotonics Research Group - Graduate Student — 2012 - Present
- Development of simulator for GaN based QCL
- Design of multiple frequency terahertz GaN based QCL
- Analysis and modeling of waveguides for terahertz region

Nanophotonics Research Group - Undergraduate Student — 2011 - 2012
- Development of Schrödinger-Poisson Solver for QCL
- Study of effect of temperature on output emission of QCL
- Study of Gain dispersion, wavelength tuning and the design-dependent Electroluminescence linewidth of QCLs

ACADEMIC EXPERIENCE

Lecturer, Department of EEE, 2012-Present
Bangladesh University of Engineering and Technology (BUET)
Courses Conducted: Electrical Circuits, Basic Electrical Technology, Energy Conversion, Electrical Properties of Materials, Numerical Analysis Techniques

PUBLICATION

M. S. H. Sohel, A. F. M. S. Haq, and M. A. Talukder, "Design and Simulation of Three Wavelength Terahertz GaN Quantum Cascade Laser," ICECE 2014, Dhaka, Bangladesh

M. S. H. Sohel and M. A. Talukder, "Cavity Design for Broadband Terahertz Lasers," ICMC 2014, Sylhet, Bangladesh

M. S. H. Sohel, O. Hassan, A. Ahmed, F. Hayee, R. Faria, and M. A. Talukder, "Effect of Temperature on Quantum Cascade Laser Emission as a Function of Cavity Length," ICECE 2012, Dhaka, Bangladesh

A. Ahmed, O. Hassan, **M. S. H. Sohel**, F. Hayee, R. Faria, and M. A. Talukder, "Quantum Cascade Laser Wavelength Tuning due to Temperature-Dependent Index of Refraction," Photonic Global Conference, PGC 2012, Singapore.

R. Faria, O. Hassan, F. Hayee, **M. S. H. Sohel**, A. Ahmed, and M. A. Talukder, "Study of Design-Dependent Electroluminescence Linewidth of Quantum Cascade Lasers," PGC 2012, Singapore.

A. Ahmed, O. Hassan, **M. S. H. Sohel**, F. Hayee, R. Faria, and M. A. Talukder, "Short Pulse Dynamics in Quantum Cascade Lasers," ICECE 2012, Dhaka, Bangladesh.

O. Hassan, R. Faria, F. Hayee, **M. S. H. Sohel**, A. Ahmed, and M. A. Talukder, "Bias Dependence of Gain Spectrum of Two Phonon Resonance Design Quantum Cascade Lasers," ICECE 2012, Dhaka, Bangladesh

WORKSHOPS CONDUCTED

- IEEE GOLD Bangladesh Section LaTeX Workshop
- IEEE AIUB Student Branch LaTeX Workshop
- Workshop on Mid-IR Sources and Detectors for Sensing

WORKSHOPS ATTENDED

- IEEE GOLD COMSOL Multiphysics Modelling Workshop
- Workshop on VLSI Design using Cadence EDA Tools

RELEVANT COURSEWORK

- **Graduate Courses**: MOS Devices, Quantum Phenomena in Nanostructures, Compound Semiconductor Devices, Carbon Nanotechnology, Laser Theory

- **Undergraduate Courses**: Electrical Properties of Materials, Solid State Devices, Processing and Fabrication Technology, Compound Semiconductor and Heterojunction Devices, Analog Integrated Circuit, Optoelectronics, VLSI

PROFESSIONAL AFFILIATION

- Graduate Member, IEEE — January, 2012 - Present
- Member, IEEE Electron Devices and Solid State Circuit Society — January, 2012 - Present
- Secretary, IEEE Electron Devices and Solid State Circuit Society, Bangladesh Chapter — January, 2014 - Present
- Secretary, IEEE Graduates of Last Decades, Bangladesh Chapter — January, 2013 - December, 2013

SYNERGISTIC ACTIVITIES

- Member, Technical Committee, International Conference on Electrical and Computer Engineering (ICECE 2012 and 2014)
- Member, Organizing committee, International Conference on Informatics, Electronics & Vision (ICIEV 2013 and 2014)
- Member, Syllabus and Routine Committee for Undergraduate Studies, EEE, BUET

TECHNICAL SKILLS

- Programming Languages: C/C++, Matlab, Verilog HDL, 8086 Assembly
- Simulator: Proteus, Quartus, COMSOL, Lumerical
- Engineering Drawing Tools: AutoCad, Visio
- Fabrication Tools: Cadence, Ares

REFERENCES

Available upon request.