MD OBIDUL ISLAM

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Research Interest

Microscale Heat Transfer	Laser Materials Interactions	Surface and Interface Analysis
Low Temperature Material Science	Time Domain Thermoreflectance	Microelectronics and Nanotechnology
Thin Film Technology	Laser Multi-charge Ion (LMCI) Generation	Secondary Ion Mass Spectroscopy (SIMS)

Educations

Ph.D. in Electrical and Computer Engineering (continuing). Old Dominion University, Norfolk, VA, USA	3.96(Out of 4)	Dec 2024 (Expected)
MS in Applied Physics, Electronics & Communication Engineering. University of Dhaka, Dhaka, Bangladesh	3.75(Out of 4)	2013
B.Sc. in Applied Physics, Electronics & Communication Engineering. University of Dhaka, Dhaka, Bangladesh	3.42(Out of 4)	2011

Professional Experiences

Graduate Research Assistant (January 2019 – Present)
Laser Lab and Applied Research Center, Old Dominion University Norfolk, VA

- Process development in thin film growth and characterization.
- Construction, maintenance and troubleshooting of optical pump-probe spectroscopy.
- Experimental measurement of heat diffusion in metallic and superconducting thin films.
- Analysis of electronic processes dynamics at surface and interfaces.
- Construction and maintenance of laser multi-charge ion generation and secondary ion mass spectroscopy.
- Collaborated with equipment suppliers to ensure supply of necessary equipment for the scientific projects.

Assistant Professor, (February 2018 to December 2018) and Lecturer (March 2015 to January 2018)
Department of Electrical and Electronic Engineering (EEE), Hamdard University Bangladesh.

- Conducting both theory and laboratory classes at undergrad level.
- Supervising undergrad level projects under requirements set by the Hamdard University Bangladesh.
- Serving as a member of undergrad project/thesis evaluation committee.

Lecturer (October 2013 to March 2015)
Electronic and Telecommunication Engineering, Atish Dipankar University of Sci. & Tech., Dhaka, Bangladesh.

- Conducting both theory and laboratory classes at all levels.
- Designing the annual academic plan.

Technical Skills

- **Thin Film Fabrication:** RF/DC Sputtering, Thermal evaporation, Pulsed laser deposition (PLD.
- **Thin Film Characterization:** SEM, EDS, FESEM, XRD, AFM.
- **System Design and Construction:** Optical spectroscopy by femtosecond pump-probe (TDTR), Multi-charge Ion (MCI) Generation, Secondary ion mass spectroscopy (SIMS).
- **Equipment Installation and Assembly:** Femtosecond Laser Oscillator (Tsunami Ti:sapphire by Spectra-Physics), Helium cooled closed-loop cryogenic system (ARS Model CS-202PF-DMX-21), nanosecond Nd:YAG lasers, PVD system (sputter coater and thermal evaporator), Air and water-cooled chiller, Temperature controller (Lakeshore Model 335), Lock-in amplifier, Acousto-optic Modulator, Electro-optic Modulator, CCD camera ETC..

- **Optical Measurements:** TDTR, Ultrafast electron diffraction (UED), Autocorrelation by SHG crystal, Optical microscope, measuring laser pulse width using knife edge technique and beam profilometer, Laser beam alignment, Polarization and Frequency doubling using non-linear crystal.
- **Software and Interfacing:** Analytical and numerical (Finite Difference Method) simulation of 1D heat equation using MATLAB, developed data fitting model based on heat equation and statistical analysis using MATLAB, data acquisition by Lock-in amplifier and motion control by motorized linear stage using LabVIEW, Data analysis by Excel, Origin-Lab, JMP.

Funded Projects

Project I: Measurement of Thermal Diffusivity in Ingot Niobium
Funding Agency: II-VI Incorporated, Inc.
Grant Number: 500374-010
Grant Period: 8/1/2018 - 5/31/2020

Project II: Measurement of Thermal Diffusivity of Nb and Nb3Sn
Funding Agency: BSCE Systems, Inc.
Grant Number: 500429-010
Grant Period: 4/1/2020 - 3/19/2022

Project III: Development of a Secondary Ion Mass Spectrometer Using a Laser Multicharged Ion Source
Funding Agency: National Science Foundation – Division of Material Research (NSF-DMR)
Grant Number: 2214998
Grant Period: 9/1/2022 - 8/31/2026

Research Items and Publications

White Papers:

1. "Medium-Grain Niobium SRF Cavity Production Technology for Science Frontiers and Accelerator Applications", Contribution to 2022 Snowmass Summer Study, November 03, 2022, e-Print: 2203.07371 [physics.acc-ph].
2. "Development of High-efficiency and cost-effective Forged Ingot Niobium Technology for Science Frontiers and Accelerator Applications", Snowmass 21 Contribution, August 28, 2020.

Published Journals:

1. "Utilization of Low-Cost Metals as Back Contact with Perovskite Solar Cell", Dhaka University Journal of Applied Science & Engineering, Volume – 4, No.1, 35-38, January 2017.
2. "Systematic Optimization for the Design of Si-NW Biosensor", Dhaka University Journal of Applied Science & Engineering, Volume – 4, No.1, 39-44, January 2017.
3. "Comparative Performance Study of Perovskite Solar Cell for Different Electron Transport Materials", Dhaka University Journal of Science, Volume – 66, No.2, 9-14, July 2018.
4. "Exploration of Ferroelectric Material-based Field Effect Transistor", Journal of Hamdard University Bangladesh, Volume – 4, No.2, ISSN: 2409-9627, December 2019.

Conference Proceedings:

1. "Performance analysis of a Si-NW Biosensor for Detection of Charged Biomolecules", International Conference on Informatics, Electronics & Vision (ICIEV), Dhaka, Bangladesh, 23-24 May 2014.
2. "Logical clipper and de-clipper technique to reduce PAPR from OFDM Signal", International Conference on Innovations in Science, Engineering and Technology (ICISET), Dhaka, Bangladesh, 28-29 October 2016.

3. "Performance Analysis of Nano-scale Double-Gated Field Effect Transistor pH Sensor", International Conference on Mechanical Engineering & Applied Science (ICMEAS), Military Institute of Science and Technology, Dhaka, Bangladesh 22-23 February 2017.
4. "Exploring Optimum Front Contact for Perovskite-sensitized Solar Cell", International Conference on Mechanical Engineering & Applied Science (ICMEAS), Military Institute of Science and Technology, Dhaka, Bangladesh 22-23 February 2017.
5. "Characterization of Nanoscale Double-Gate FinFET", International Conference on Material Science and Semiconductor Devices (ICMSSD), University of Dhaka, Dhaka, Bangladesh, 07-08 September 2018.

Poster Presented:

1. "Construction of a Femtosecond Pump-Probe Spectroscopy for Thermal Diffusivity Measurement of Superconducting Niobium", presented at AVS Mid Atlantic Regional Meeting, April 2019, Jefferson Lab, Newport News, Virginia, USA.
2. "Measuring Thermal Diffusion and Sound Velocity Inside Niobium Thin Films by Pump-Probe Spectroscopy", presented at ESPEX 2022, April 26, 2022, CHARTWAY ARENA & BIG BLUE ROOM - TED CONSTANT CENTER, Old Dominion University, Norfolk, Virginia, USA.

Invited Talk:

1. "Ultrafast Thermoreflectance Studies of Niobium Thin Films", Department of Electrical and Computer Engineering at Old Dominion University, September 17, 2021.

Extra-curricular and Leadership Skills

1. President, BDSA: Bangladesh Student Association, ODU (August 2019-July 2020), organized numerous social programs at ODU.
2. Founder and Advisor of HEEE Association (from 2016-2017), an organization of co-curricular and extra-curricular clubs of the Dept. of EEE at Hamdard University Bangladesh, organizes several seminars, workshops, study tour, industrial attachments, and tech fair.
3. General-Secretary of Dhaka University Career Club (DUCC) (2011-2012), a career organization of the University of Dhaka, organizes 1st Job Fair at Dhaka University Campus in 2012.
4. Joint-Secretary of Ekushey Debating Club (EDC) (2007-2008), a debate organization of the University of Dhaka, Amar Ekushey Hall Branch, organizes 1st Language Day Inter Club Debating Competition.
5. Graduate Student Member (97181214), IEEE, R3 -Southeastern USA, Hampton Roads Section.

Personal Identifiable Information

Surname	:	Islam
Given Name		Md Obidul
Country of Birth	:	Bangladesh
Date of Birth	:	25 May 1987
Country of Citizenship	:	Bangladesh
Passport Number	:	A03804377
US Visa Status	:	F1 (09 Dec 2018 – 05 Dec 2023)
I-20 Expiration Date		13 Dec 2024
US Driver's License	:	B60505622 (Virginia)
Safe Driving Points		+02 (Clean driving records)

Profile URLs

Website: https://obidulislam.com/
Google Scholar: https://scholar.google.com/citations?user=mqO3Nu4AAAAJ&hl=en&oi=ao