

Name: Dr. Md Tareque Aziz



Employee ID #:8518

Designation: Assistant Professor in Physics

Name of the Department: Electrical and Electronic Engineering

Name of the School: Science and Engineering

Academic Qualifications:

SI #	Name of Degree	Institution	Board	Major	Passing Year	Result/ CGPA
1.	Ph.D	University of Delaware, Delaware, USA	N/A	Physics	2011	Awarded
2.	MS	Southern Illinois University, Carbondale, IL, USA	N/A	Physics	2002	Awarded
3.	MPhil	Bangladesh University of Eng & Tech, Dhaka	N/A	Physics	1997	Awarded

Tenure of Teaching/Research Experiences:

Full-Time Experiences:

SI #	Position	Department	University/ Institution	Start	End	Length of Service
1.	Assistant Professor	EEE	Southeast University	27.01.2019	continuing	1 Months
2.	Post Doctoral Research Fellow	Photon Science	Brookhaven National Laboratory, NY, USA	November, 2014	December, 2017	3 years
3.	Process Engineer	MRL	TJ Watson Center, IBM, NY,USA	September, 2011	October, 2014	3 years

Part-Time Experiences: N/A

Teaching Competences:

- 1) Expert in cognitive teaching using Revised Bloom's Taxonomy
- 2) Expert in Physics laboratory experimental works
- 3) Expert in Physics Theory courses

Teaching Interests:

- 1) Physics
- 2) Material Science
- 3) Semiconductor Physics
- 4) Evolution of Physics in modern times

Research Areas:

- 1) Evolution of vorticity in Non-Neutral Plasma in Electron Traps
- 2) Theoretical modelling for emergence of suppression of non-linearity in turbulent plasma
- 3) Thin Film Research: **Nanowire, DNA, Photonics, PCM, SOI, III-V materials and MRAM**
- 4) X-Ray detector: Soft and Hard X-ray, 3D detector
- 5) Study of turbulence in 2D fluid aspects of nature: Cyclones, Tornadoes etc.

Research Publications:

(a) Thesis:

- Ph.D. Thesis: *Spectral and Statistical Study of Relaxation Processes in Two Dimensional Guiding Center Plasma using Penning Trap Data*
- M.S. Thesis: *Isosteric Heat of Xenon on Carbon Nanohorns*
- MPhil Thesis: *Preparation and Study of Non-stoichiometric MnZn Ferrite under different Sintering Conditions*

(b) Journal Papers:

- [1] D Rodgers, S Servidio, W H Matthaeus, D Montgomery, T B Mitchell, T Aziz
“Hydrodynamic relaxation of an electron plasma to a near-maximum entropy state.” **PRL, 102 (24), 244501, 2009**
- [2] A J Zambano, S Talapatra, K Lafdi, M T Aziz, W McMillin, G Shaughnessy, A Migone, M Yudasaka, S Iijima, F Kokai and K Takahashi “Adsorbate binding energy and adsorption capacity of xenon on carbon nanohorns.” **Nanotechnology,13, 201, 2002**

(c) Conference Presentations:

- [1] T Aziz, AK Rumaiz, Peter Siddons, “Titanium as a contact metal for high resistivity silicon based radiation detectors” APS March Meeting, 2016
- [2] T Aziz, M Wan, K Osman, D Rodgers, S Servidio, T B Mitchell, W H Matthaeus “Patchy correlations and suppression of nonlinearity in a variety of systems: Solar wind observations, MHD simulation and pure electron plasma experiments.” **AGU Fall meeting, 2010**
- [3] D Rodgers, S Servidio, W H Matthaeus, D Montgomery, T B Mitchell, T Aziz “Experimental tests of the von Karman self-preservation hypothesis: decay of an electron plasma to a near-maximum entropy state.” **AGU Fall meeting, 2009**
- [4] W H Matthaeus, D Rodgers, S Servidio, D Montgomery, T B Mitchell, T Aziz “Nonlinear dynamics of two-dimensional electron plasma.” **AGU Fall meeting, 2008**

Technical Skills:

While working at Brookhaven National Lab:

- [1] I helped **installing and characterization of the CMP machine** for the group
- [2] Regularly participated in **Thin film processing (CVD, PVD, PECVD), Photolithography, etching of thin films (wet and dry), Electroplating, running diagnostics and carefully documenting fabrication steps** of devices
- [3] **Learned to use US LASER tool** for laser scribing
- [4] Learned and used **ASML projection optical lithography** for a specific pattern experiment

While working at IBM:

- [5] *Facilitated and contributed extensively* in **creating endpoint algorithms** for several etch processes for **AMAT Centura** tool
- [6] **Maintained** etch tool by **monitoring contamination, cleaning chambers and running twice-a-week periodic qualification**
- [7] **Trained** several other process engineers successfully for the **AMAT Centura** tool and for other sectors
- [8] **Worked** on several different **RIE tools: AMAT AP 300mm CENTURA, LAM 4520 and 9400**
- [9] **Used** KLA-Tencor ASET F5 Ellipsometer, KLA-Tencor P-15 Profilometer for **Metrology and inspection purpose**
- [10] **Used** Electron microscopy (TEM, SEM), XEDS,
- [11] **Have long experience with** UV lithography using **Suss** Photolithography tools
- [12] **Have done** XRD and XPS
- [13] Proficiently used CMP, PECVD, PVD tools

While working at Univ of Delaware

- [14] *Designed* **LabVIEW programs** to **control voltage ramps for injection of electron plasma, and perform electron column manipulation** inside a Penning Trap
- [15] **For Imaging** the electron plasma, have used **Andor I-Star intensified 1024-by-1024 CCD camera** and *worked extensively* on **data acquisition** techniques and **Image processing** with **Matlab** and **IDL**

Computer Skills:

- [1] Advanced Knowledge: **Matlab, IDL, Origin**
- [2] Intermediate Knowledge: **VBA, Python, FORTRAN, Maple, Mathematica, LabVIEW, AutoCAD, LATEX**
- [3] Basic Knowledge: **html, xml, Access, Linux, Dreamweaver, Adobe Illustrator, Adobe Photoshop**

Extra-Curricular Activities:

- [4] Open Source Software Enthusiast
- [5] Game theory application on Social dynamics

Technical Affiliations:

- [1] Member of APS

Industry Visits: *IBM, AMAT, GLOBAL FOUNDRY, Micron etc.*

Contact Information:

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