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## **Dr.MD. ASIF AMIN**

Assistant Professor  
Department of Chemistry, Suri Vidyasagar College  
Suri, Birbhum, West Bengal-731101, India  
*E-mail:* asifaminvb@gmail.com  
*Mobile:* +91 9046440989

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### ***Personal Details:***

Date of Birth: 07<sup>th</sup> October, 1990; Sex: Male; Nationality: Indian

### ***Education/Research:***

<b>Ph. D.</b>	September 20, 2018	<b>Title:</b> Time resolved spectroscopy and microscopy: Application to live cell and related systems <b>Supervisor: Professor Kankan Bhattacharyya and Dr. Biman Jana</b>
<b>M.Sc. (Chemistry)</b>	2014	Visva Bharati
<b>B.Sc. (Chemistry Honors)</b>	2012	Visva Bharati University
<b>Higher Secondary</b>	2009	West Bengal Council of Higher Secondary Education
<b>Secondary</b>	2007	West Bengal Board of Secondary Education

### ***Awards, Achievements and Fellowships:***

Received **Minority Merit cum Means Scholarship** in 2007

Received **State Merit cum Means Scholarships** in 2007, 2009 and 2012

Received **INSPIRE Scholarship (Govt. of India)** in 2009

Received **Indian Academy of Sciences Summer Research Fellowship** 2018.

Life member of Indian Society for Radiation and Photochemical Sciences (**ISRAPS**)

### ***Results in Other Examinations:***

Qualified in CSIR-NET in June,2013(Rank-74)

Qualified in GATE Examination in 2014 (Rank-100)

### ***Research Interest:***

1. Single Molecule Spectroscopy (SMS):
  - a) Fluorescence Correlation Spectroscopy (FCS),
  - b) Time Resolved Confocal Microscopy,
  - c) Single Molecule FRET (sm-FRET).
2. Protein Folding Dynamics: Lysozyme, Cytochrome c
3. Live Cell: Time Resolved Confocal Microscopy, Biological Oscillations, Solvation Dynamics
4. Noble metal nano-clusters: Cancer cell imaging and developing drug-delivery vehicle
5. Computational Chemistry (**DFT Siesta Package**), **Molecular Dynamics Simulation**.
6. Polymer Chemistry: Polyaniline.
7. Visible pump IR probe technique.

### ***Techniques Known:***

<b>Techniques</b>	<b>Used for</b>
Time-resolved confocal microscopy using PicoQuant MT-200	FCS, sm-FRET, FLIM, diffusion, Conformation dynamics, acquisition of Emission Spectra at single molecule level using EMCCD camera, Time resolved confocal microscopy in live cell, dynamics of noble-metal nano-clusters
Synthesis	Synthesis of noble metal nano-clusters, protein labeling, carboxylic acid doped polyaniline synthesis, drug loading on nano carrier.
Time Correlated Single Photon Counting (TCSPC)	Solvation dynamics
Incubator, Bio-safety cabinet, -80 °C deep freeze, Centrifuge, Multi-scan FC	Conversant with cell culture
Spectrophotometer and Spectrofluorimeter	Steady state absorption and emission
Cell Culture, MTT assay	Cell viability
Visible pump IR probe	transient absorption spectroscopy

### **Computer Skill:**

- Platform (OS): Windows, Linux
- Knowledge of Programming: C, BASIC
- Software's handle: I can extensively handle following software - GAUSSIAN 03, Gauss View 03, Origin 8, Igor Pro6, Image J, Material Studio.

### **List of Publications:**

#### **I. Published papers**

1. "Aromatic bi-, tri- and tetracarboxylic acid doped polyaniline nanotubes: effect on morphologies and electrical transport properties" Utpal Rana, Sanjoy Mondal, Jhuma Sannigrahi, Pradip Kumar Sukul, **Md. Asif Amin**, Subham Majumdar and Sudip Malik *Journal of Material Chemistry C* ( J. Mater. Chem. C, 2014, 2, 3382-3389)
2. "Intermittent Fluorescence Oscillations in Lipid Droplets in a Live Normal and Lung Cancer Cell: Time-Resolved Confocal Microscopy." Rajdeep Chowdhury, **Md. Asif Amin** and Kankan Bhattacharyya. *J. Phys. Chem. B* **2015**, *119*, 10868–10875.
3. "Cancer Cell Imaging Using in Situ Generated Gold Nanoclusters" Shyamtanu Chatteraj, **Md. Asif Amin**, Saswat Mohapatra, Surajit Ghosh, and Kankan Bhattacharyya *ChemPhysChem* **2016**, *17*, 61–68.
4. "Selective Killing of Breast Cancer Cells by Doxorubicin-Loaded Fluorescent Gold Nanoclusters: Confocal Microscopy and FRET" Shyamtanu Chatteraj, **Md. Asif Amin**, Batakrishna Jana, Saswat Mohapatra, Surajit Ghosh and Kankan Bhattacharyya *ChemPhysChem* **2016**, *17*, 253–259.
5. "Cytochrome *c*-Capped Fluorescent Gold Nanoclusters: Imaging of Live Cells and Delivery of Cytochrome *c*." Shyamtanu Chatteraj, **Md. Asif Amin**, and Kankan Bhattacharyya. *ChemPhysChem* **2016**, *17*, 2088-2095.
6. "Effect of Alcohol on the Structure of Cytochrome C: FCS and Molecular Dynamics Simulations." **Md. Asif Amin**, Ritaban Halder, Catherine Ghosh, Biman Jana, Kankan Bhattacharyya. *J. Chem. Phys.* **145**, 235102 (2016).
7. "Size and Structure of Cytochrome C bound to Gold nano-clusters: Effect of Ethanol." Catherine Ghosh, **Md. Asif Amin**, Biman Jana and Kankan Bhattacharyya. *Journal of Chemical Sciences* **2017**, *189*, 841.
8. "Physical Chemistry in a Single Live Cell: Confocal Microscopy." **Md. Asif Amin**, Somen Nandi, Prasenjit Mondal, Tanushree Mahata, Surajit Ghosh and Kankan Bhattacharyya. *Phys. Chem. Chem. Phys.*, 2017, **19**, 12620-12627.
9. "Probing Deviation of Adhered Membrane Dynamics between Reconstituted Liposome and Cellular System" P. Mondal, R. Chowdhury, S. Nandi, **Md. Asif Amin**, S. Ghosh, K. Bhattacharyya *Chemistry—An Asian Journal*, 2019, **14** (24), 4616-4624.

## **II. Book Chapter**

“Microbial Nanotechnology: A Biocompatible Technology for Sustainable and Green Agriculture Practice”Md. Asif Amin, *Microbial Symbionts and Plant Health: Trends and Applications for Changing Climate 2023*, Springer Nature Singapore, 545-557.

### **Other Research Experiences:**

1. Worked on carboxylic acid doped polyaniline under the guidance of Dr. Sudip Malik, Polymer Science Unit, **Indian Association for the Cultivation of Science**. (May 2012-July 2012) under INSPIRE program.
2. Computational Chemistry on metal organic framework (MOF) with Professor Pranab Sarkar, Department of Chemistry, **Visva Bharati**. (April 2013-May 2014)
3. Pump probe technique with Dr. Sukhendu Nath, Scientist H, **Bhabha Atomic Research Centre** under Summer Research Fellowship program by IASc, INSA, NASI in teacher grade. (October 2018-Present)