

# Md. Asif Amin, Ph.D.

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## EMPLOYMENT

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### Balurghat Mahila Mahavidyalaya

*Assistant Professor and Head*  
Department of Chemistry

Balurghat, India

2017–present

## EDUCATION

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### Indian Association for the Cultivation of Science

*Ph.D*

Kolkata, India

Jun 2014 – Sep 2018

- Thesis title: “Time resolved spectroscopy and microscopy: Application to live cell and related systems”  
(Under the supervision of Professor Kankan Bhattacharyya and Dr. Biman Jana)

### Visva-Bharati University

*M.Sc. in Chemistry*

Special paper: Physical Chemistry

- Cumulative GPA 7.9 (10-scale)

Santiniketan, India

2012 – 2014

### Visva-Bharati University

*B.Sc. (Major: Chemistry)*

Minor: Physics & Mathematics

- Grade percentage: 76.7%

Santiniketan, India

2009 – 2012

## SCHOLASTIC ACHIEVEMENTS

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### Indian Academy of Sciences Summer Research Fellowship

*Fellowship*

2018

### CSIR fellowship for Doctoral Research

*Fellowship*

2014-2018

### Qualified in GATE Examination

*All India Rank: 100*

2014

### Qualified in CSIR-NET

*All India Rank: 74*

2013

### INSPIRE Scholarship (Govt. of India)

*Fellowship*

2009

### State Merit cum Means Scholarships

*Fellowship*

2007, 2009 and 2012

## PROFESSIONAL COMPETENCE

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### Instruments.....

- **Time-resolved confocal microscopy** (PicoQuant MT-200)  
(Used for: 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)
- **Time Correlated Single Photon Counting** (TCSPC)  
(Used for: Solvation dynamics)
- **Spectrophotometer and Spectrofluorimeter**  
(Used for: Steady state absorption and emission)
- **Cell Culture, MTT assay**  
(Used for: Cell viability)
- **Visible pump IR probe**  
(Used for: Transient absorption spectroscopy)
- **Incubator, Bio-safety cabinet, -80 C deep freeze, Centrifuge, Multi-scan FC**  
(Used for: Conversant with cell culture)

### Softwares and computer skills.....

- GAUSSIAN 03
- GaussView 3
- Origin 8
- Igor Pro 6
- Image J
- Material Studio
- DAS 6 Analysis
- Excipro
- Platform (OS): Windows, Linux
- Programming: C

### Synthesis Skills.....

- Noble metal nano-clusters
- Protein labeling
- Carboxylic acid doped polyaniline synthesis
- Drug loading on nano carrier

## LANGUAGE

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- English [fluent]
- Hindi [good]
- Bengali [fluent]

## PUBLICATIONS

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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 *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 Bhat-

tacharyya. *J. Phys. Chem. B* 2015, 119, 1086810875.

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**, Batakrisna 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 (DOI: 10.1002/asia.201900588)

## OTHER RESEARCH EXPERIENCES

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### Pump probe technique

Oct 2018 - Dec 2018

(Summer Research Fellowship program by IASc, INSA, NASI in teacher grade)

### Bhabha Atomic Research Centre

- o Advisor: Dr. Sukhendu Nath

### Computational Chemistry on metal organic framework

Apr 2013 - May 2014

(M.Sc thesis project)

### Visva Bharati University

- o Advisor: Dr. Pranab Sarkar

### Carboxylic acid doped polyaniline

May 2012 - July 2012

(Summer Research program by INSPIRE)

### Indian Association for the Cultivation of Science

- o Advisor: Dr. Sudip Malik

## RESEARCH INTERESTS

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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 , Molecular Dynamics Simulation.
  6. **Polymer Chemistry:** Polyaniline.
  7. **Visible pump IR probe technique**

## CONFERENCES

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- National Symposium on Radiation and Photochemistry** 2017  
**Dept. of Chemistry, Manipal University**
- *Poster presentation & special talk: "Selective Killing Of Breast Cancer Cells Using Doxorubicin Loaded Fluorescent Gold Nanoclusters: Confocal Microscopy And FRET"*
- Biosafety, Bioresource And Sustainable Development** 2017  
**Balurghat Mahila Mahavidyalaya**
- *Invited talk: "Selective Killing Of Breast Cancer Cells Using Doxorubicin Loaded Fluorescent Gold Nanoclusters: Confocal Microscopy And FRET"*
- National Symposium on Radiation and Photochemistry** 2019  
**Dept. of Chemistry, Visva-Bharati University**
- *Poster presentation: "Cytochrome C-capped Fluorescent Gold Nanoclusters: Imaging of Live Cells And Delivery Of Cytochrome C"*

## MEMBERSHIPS

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

## REFERENCES

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### Prof. Kankan Bhattacharyya

✉ Emeritus Professor,  
 Department of Chemistry,  
 Indian Institute of Science Education and Research  
 Bhopal - 462066, India  
 Senior Editor, Journal of Physical Chemistry  
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### Prof. Pranab Sarkar

✉ Professor  
 Department of Chemistry  
 Visva Bharati University  
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### Dr. Biman Jana

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### Prof. Sudip Malik

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