

# Curriculum vitae

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## **Dr. Sanghamitra Atta**

State Aided College Teacher  
Department of Chemistry  
Behala College-700060



### Educational Qualification:

- **Ph.D.** (2013, Chemistry, Organic photochemistry): IIT Kharagpur, West Bengal, India.

**Thesis Title:** Photoremovable Protecting Group Based Delivery Devices for Controlled Release of Agrochemicals

**Advisor:** Prof. N. D. Pradeep Singh

**Area of research:** Organic Photochemistry

### Special courses credited during Ph. D:

- Newer Methods in Organic Synthesis
  - Advanced Heterocyclic Chemistry
  - Pericyclic Reactions and Photochemistry
  - Organometallic Chemistry
  - Society Science & Technology
  - English for Technical writing
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- **Post doctoral research:** Dr. D S Kothari Post Doc Fellow (UGC, 01.09.2014 to 31.08.2017) Department of Chemistry, University of Calcutta, 92 APC Road, Kolkata-700009 (Supervisor: Prof. Dilip Kr. Maiti)
  - **Master of Science:** (2007, Chemistry, Organic Special, 81.2 %, 3<sup>rd</sup> rank): Vidyasagar University, West Bengal, India.
  - **Bachelor of Science:** (2005, Chemistry Honours, 61% ): Midnapore College, Vidyasagar University, India.
  - **Higher Secondary** (2001, 75.1 %) , Balichak bhajahari Institution, West Bengal Council of Higher Secondary education
  - **Madhyamik** (1999, 83.1 %), Madpur High School, West Bengal Board of Secondary Education
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### Academic Position Held:

- Guest Lecturer in the Department of Chemistry, Behala College, Kolkata (02.08.2017-31.12.2019).
- State Aided College Teacher (1st January 2020 – till to date)

### Teaching Experience:

- **Instructor:** Sole responsibility for 2 graduate students and 1 undergraduate student, emphasis on research project and presentations in conferences.
- Under graduate Organic Chemistry practical course, 1 term in the year 2008-2009 at IIT Kharagpur
- Under graduate Organic Chemistry practical course, 2 terms in the year 2009-2010 at IIT Kharagpur
- Under graduate Organic Chemistry theoretical classes (tutorial), 4 terms with in the year 2010-2012 at IIT Kharagpur

### Research Experience

🏆 **Post doctoral research:** Dr.DSK Post Doc Fellow (UGC, 01.09.2014 to till date) Department of Chemistry, University of Calcutta, 92 APC Road, Kolkata-700009 (Supervisor: Prof. Dilip Kr. Maiti)

**Topic of Research:** Design, Synthesis and Fabrication of Nanocarbosphere and Nanosilicasphere-Based Metal NPs: Exploiting Their Novel Catalytic Property for Synthesis of Functional Molecules

🏆 **Doctoral Research:** Department of Chemistry, Indian Institute of Technology Kharagpur, India. 2008-2012 (**Research Advisor: Prof. N. D. Pradeep Singh**)

- ❖ Succeeded in designing novel light stimulated controlled release formulation based on fluorescent photoremovable protecting groups (Coumarin, Pyrene, Perylene, Anthracene, Anthraquinone) for agrochemicals (pesticide, plant growth regulators, pheromone).
  - ❖ Developed for the first time nano-pesticide formulation based on perylene photoremovable protecting group for simultaneous cell imaging and controlled pesticide delivery.
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- ❖ Designed and synthesized nanomicelles of photoresponsive polymers based on coumarin derivatives for controlled release of agrochemicals.
- ❖ Knowledge in investigation of photophysical properties: UV/vis absorption and emission properties of caged compounds and their precursors.
- ❖ Experience in carrying out photochemical studies of photorelease of agrochemicals from caged compounds by one photon and two photon excitation.

### Research Skills:

#### General:

Experience in synthesis and characterization of organic compounds by UV, IR,  $^1\text{H}$  &  $^{13}\text{C}$ -NMR and mass spectral analysis

Experience in isolation and purification of organic compounds by TLC, Column Chromatography, HPLC, Crystallization and distillation during the research works Knowledge in synthesis and characterization of photoresponsive polymers by GPC

Experience in preparation of photoresponsive nanoparticles and characterization them using TEM, SEM, AFM and XRD analysis

Knowledge in plant growth bioassay and cell imaging

#### Instruments Known:

1. Operation of 200 MHz NMR Instrument.
2. Operation of HPLC Instrument.
3. Operation of UV-visible spectrophotometer and fluorescence spectrophotometer.
4. Operation of GPC.
5. Operation of ANOVA and SPSS software.

#### Awards and Honours:

- Dr DS Kothari post doc fellowship (UGC), 2014
  - Best Poster award (2012): International symposium held in Midnapore college
  - CSIR-UGC NET (2007): Qualified for JRF (CSIR).
  - GATE qualified (2007).
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**Research Publications:**

1. Samai, Subhasis; Ghosh, Debasish; Das, Uttam K.; **Atta, Sanghamitra**; Manna, Saikat K.; Maiti, Dilip K. "Water - the best solvent for DMAP-mediated dual cyclization towards metal-free first synthesis of fully substituted phthalimides" *Green Chemistry* **2016**, *18*, 2961-2965.
  2. **Atta, Sanghamitra**; Paul, Amrita; Banerjee, Rakesh; Bera, Manoranjan; Iqbal, Mohammed; Dhara, Dibakar; Singh, N. D. Pradeep "Photoresponsive polymers based on a coumarin moiety for the controlled release of pesticide 2,4-D" *RSC Advances* **2015**, *51*, 99968-99975.
  3. **Atta, Sanghamitra**; Bera, Manoranjan; Chattopadhyay, Tirthartha; Paul, Amrita; Iqbal, Mohammed; Maiti, Mrinal K.; Singh, N. D. Pradeep "Nano-pesticide formulation based on fluorescent organic photoresponsive nanoparticles: for controlled release of 2,4-D and real time monitoring of morphological changes induced by 2,4-D in plant systems" *RSC Advances* **2015**, *5*, 86990-86996.
  4. Dasgupta, Soham; **Atta, Sanghamitra**; Singh, N. D. Pradeep; Deb, Dibakar; Kassel, W. Scott; Bhattacharjee, Manish "Synthesis and Structure of [Et<sub>3</sub>NH]-[Fe(HL)<sub>2</sub>] [H<sub>3</sub>L = L-2-(3,5-Di-tert-butyl-2-hydroxybenzylamino)succinic Acid] and Its Catalytic Activity towards Efficient Photodegradation of Dyes in the Presence of H<sub>2</sub>O<sub>2</sub>" *European Journal of Inorganic Chemistry* **2014**, *30*, 5125-5134.
  5. Iqbal, Mohammed; Banerjee, Rakesh; Barman, Shrabani; **Atta, Sanghamitra**; Dhara, Dibakar; Singh, N. D. Pradeep "1-Acetylferroceneoxime-based photoacid generators: application towards sol-gel transformation and development of photoresponsive polymer for controlled wettability and patterned surfaces" *Journal of Materials Chemistry C: Materials for Optical and Electronic Devices* **2014**, *2*, 4622-4630.
  6. Iqbal, Mohammed; Saha, Biswajit; Barman, Shrabani; **Atta, Sanghamitra**; Banerjee, Deb Ranjan; Ghosh, Sudip Kumar; Singh, N. D. Pradeep "Benzo[a]acridinylmethyl esters as pH sensitive fluorescent photoactive precursors: synthesis, photophysical, photochemical and biological applications" *Organic & Biomolecular Chemistry* **2014**, *12*, 3459-3469.
  7. **Atta, Sanghamitra**; Iqbal, Mohammed; Boda, Nishitha; Gauri, Samiran S.; Singh, N. D. Pradeep "Photoremovable protecting groups as controlled-release device for sex pheromone" *Photochemical & Photobiological Sciences* **2013**, *12*, 393-403.
  8. Iqbal, Mohammed; Banerjee, Rakesh; **Atta, Sanghamitra**; Dhara, Dibakar; Anoop, Anakuthil; Singh, N. D. Pradeep "Synthesis, Photophysical and Photochemical Properties of Photoacid Generators Based on N-Hydroxyanthracene-1,9-dicarboxyimide and Their Application toward Modification of Silicon Surfaces" *Journal of Organic Chemistry* **2012**, *77*, 10557-10567.
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9. Ikbal, Mohammed; Banerjee, Rakesh; **Atta, Sanghamitra**; Jana, Avijit; Dhara, Dibakar; Anoop, Anakuthil; Singh, N. D. Pradeep "Development of 1-Hydroxy-2(1H)-quinolone-Based Photoacid Generators and Photoresponsive Polymer Surfaces" *Chemistry - A European Journal* **2012**, *18*, 11968-11975, S11968/1-S11968/23.
10. **Atta, Sanghamitra**; Ikbal, Mohammed; Kumar, Ashutosh; Pradeep Singh, N. D. Application of photoremovable protecting group for controlled release of plant growth regulators by sunlight" *Journal of Photochemistry and Photobiology, B: Biology* **2012**, *111*, 39-49.
11. Jana, Avijit; **Atta, Sanghamitra**; Sarkar, Sujan K.; Singh, N. D. Pradeep "1-Acetylpyrene with dual functions as an environment-sensitive fluorophore and fluorescent photoremovable protecting group" *Tetrahedron* **2010**, *66*, 9798-9807
12. **Atta, Sanghamitra**; Jana, Avijit; Ananthakirshnan, Rajakumar; Dhuleep, Pradeep Singh Narayana Fluorescent Caged Compounds of 2,4-Dichlorophenoxyacetic Acid (2,4-D): Photorelease Technology for Controlled Release of 2,4-D" *Journal of Agricultural and Food Chemistry* **2010**, *58*, 11844-11851.
13. Ikbal Mohammed; Saha Biswajit; Barman Shrabani; **Atta Sanghamitra**; Banerjee Deb Ranjan; Ghosh Sudip Kumar; Singh N D Pradeep Benzo[a]acridinylmethyl esters as pH sensitive fluorescent photoactive precursors: synthesis, photophysical, photochemical and biological applications" *Organic & biomolecular chemistry* **2014**, *12*, 3459-69.

### Patent:

1. **Sanghamitra; Atta**, Singh, N. D. Pradeep; Banerjee, Rakesh; Dhara, Dibakar; Ikbal, Mohammed "Photoresponsive polymers based on coumarin moiety for controlled release of pesticide and formulations thereof" *Indian Pat. Appl.* **2015**, IN 2013KO00875 A 20150130.
2. **Atta, Sanghamitra**; Chattopadhyay, Tirthartha; Ikbal, Mohammed; Singh, N. D. Pradeep; Maiti, Mrinal K. "Nano-pesticide formulation based on fluorescent organic photoresponsive nanoparticles" *Indian Pat. Appl.* **2014**, IN 2013KO00555 A 20141121.

### Work Presented in Conferences:

**Sanghamitra Atta**, Mohammed Ikbal, Avijit Jana, Nilanjana Chowdhury and N.D. Pradeep Singh\*,

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- “Synthesis of New Photoremovable Protecting Groups (PRPGs), Sixth One Day National Symposium in Chemistry held in the department of Chemistry, Indian Institute of Technology, Kharagpur, India (November 8, 2008).
- **Sanghamitra Atta**, and N.D. Pradeep Singh\*, Sixth JNOST Conference held at School of Chemistry, University of Hyderabad, India (28<sup>th</sup> 31st January, 2011).
- **Sangamithra Atta**, Mohammed Iqbal, Avijith Jana, Bhaskara rao.P, Karthik.S, Krishna kalyani.B, Momitha Ganguly, Nilanjana Chowdhury, and N. D. Pradeep Singh\*, “Application of Light-Using Photons as Reagents” Diamond Jubilee Symposium on Recent Trend in Chemistry held at Indian Institute of Technology, Kharagpur, India (21st – 23rd October, 2011)
- **Sanghamitra Atta**, and N.D. Pradeep Singh\*, International Symposium on Chemistry and Complexity, 6-8 December, 2011 held at Indian Association for the Cultivation of Science (IACS) Jadavpur, Kolkata.

**Personal Information:**

**Date of Birth:** 19/12/1983

**Sex:** Female

**Nationality:** Indian

**Marital Status:** Married

**Permanent Address-** Vill- Durgapur, PO- Goura, PS- Daspur, West Midnapore-721146, WB

**Declaration:** The information given by me is true and best of my knowledge.

Place: Kolkata

Date: 06.09.2021

*Sanghamitra Atta*

(Dr. SANGHAMITRA ATTA)

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