

# CURRICULAM VITAE

Name: **Dr. Paramita Hajra**  
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## **Address:**

Department of Chemistry, Srikrishna College,  
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## **FORMAL EDUCATION**

- Doctorate of Philosophy in Chemistry (Ph.D.) from IEST, Shibpur, West Bengal
- Master of Science (M.Sc.) in Chemistry from Scottish Church College, University of Calcutta.

**Thesis title:** *Development of n-Type Bi-Based Binary and Ternary Metal Oxide Semiconductors and Their Application in Photoelectrochemical Water Oxidation.*

## **RESEARCH AREAS**

- Photo electrochemical Solar Cell for water splitting application,
- Electrochemistry,
- Material Chemistry.

## **EXPERIENCE**

- CSIR-Research Associate, Fuel Cell & Battery Division of Central Glass & Ceramics Institute (CSIR), Kolkata.
- Visiting Faculty, Chemistry & Environment, Heritage Institute of Technology, Kolkata
- Guest Lecturer, Environment & Ecology, Pailan Institute of Technology, Kolkata.
- Guest Lecturer, Department of Chemistry, Seth Anandaram Jaipuria College, Kolkata.
- Guest Lecturer, Department of Chemistry, Scottish Church College, Kolkata.
- Assigned B. E. 1<sup>st</sup> semester laboratory Class in the year of 2015.

## **FELLOWSHIPS / SCHOLARSHIPS**

- Qualified CSIR-UGC NET at 2013.
- Received Fellowship as JRF/SRF from SERB-DST, Gov. of India (while pursuing Ph.D.).
- Received Indira Gandhi Scholarship for Single Girl Child for Higher Education in 2011 (while pursuing M.Sc.)
- Qualified the National Scholarship for Academic Excellence in the year 2003.

## **PAPERS PUBLISHED IN JOURNALS**

1. **P. Hajra**, S. Kundu, A. Maity and C. Bhattacharya, Facile photoelectrochemical water oxidation on CO<sup>2+</sup>-absorbed BiVO<sub>4</sub> thin films synthesized from aqueous solution, Chemical Engineering Journal 374 (2019) 1221–1230.
2. **P. Hajra**, S. Shyamal, H. Mandal, D. Sariket, A. Maity, C. Bhattacharya, Synthesis of oxygen deficient Bismuth Oxide photocatalyst for improved photoelectrochemical applications, Electrochimica Acta 299 (2019) 357-365.

3. **P. Hajra**, S. Shyamal, A. Bera, H. Mandal, D. Sariket, M. Kundu, S. Pande, C. Bhattacharya, Optimization of Triton-X 100 surfactant in the development of Bismuth Oxide thin film semiconductor for improved photoelectrochemical water oxidation behaviour, *Electrochimica Acta* 185 (2015) 229–235.
4. **P. Hajra**, S. Shyamal, H. Mandal, P. Fageria, S. Pande, C. Bhattacharya, Photocatalytic activity of Bi<sub>2</sub>O<sub>3</sub> nanocrystalline semiconductor developed via chemical-bath synthesis, *Electrochimica Acta* 123 (2014) 494–500.
5. D. Sariket, S. Shyamal, **P. Hajra**, H. Mandal, A. Bera, A. Maity, S. Kundu and C. Bhattacharya, Temperature controlled fabrication of chemically synthesized cubic In<sub>2</sub>O<sub>3</sub> crystallites for improved photoelectrochemical water oxidation, *Materials Chemistry and Physics* 201 (2017) 7–17.
6. S. Shyamal, **P. Hajra**, H. Mandal, A. Bera, D. Sariket, A. K. Satpati, S. Kundu and C. Bhattacharya, Benign role of Bi on electrodeposited Cu<sub>2</sub>O semiconductor towards photo-assisted H<sub>2</sub> generation from water, *Journal of Materials Chemistry A* 4 (2016) 9244-9252.
7. H. Mandal, S. Shyamal, **P. Hajra**, A. Bera, D. Sariket, S. Kundu, C. Bhattacharya, Development of ternary iron vanadium oxide semiconductors for applications in photoelectrochemical water oxidation, *RSC Advances* 6 (2016) 4992– 4999.
8. S. Shyamal, **P. Hajra**, H. Mandal, J. K. Singh, A.K. Satpati, S. Pande, and C. Bhattacharya, Effect of substrates on the photoelectrochemical reduction of water over cathodically electrodeposited p-type Cu<sub>2</sub>O thin films, *ACS Applied Materials and Interface* 7 (2015) 18344-18352.
9. H. Mandal, S. Shyamal, **P. Hajra**, B. Samanta, P. Fageria, S. Pande, C. Bhattacharya, Improved photoelectrochemical water oxidation using wurtzite ZnO semiconductors synthesized through simple chemical bath reaction, *Electrochimica Acta* 141 (2014) 294–301.
10. S. Shyamal, **P. Hajra**, H. Mandal, A. Bera, D. Sariket, A. K. Satpati, M. V. Malashchonak, A. V. Mazanik, O. V. Korolik, A. I. Kulak, E. V. Skorb, A. Maity, E. A. Streltsov, C. Bhattacharya, Eu modified Cu<sub>2</sub>O thin films: Significant enhancement in efficiency of photoelectrochemical processes through suppression of charge carrier recombination, *Chemical Engineering Journal* 335 (2018) 676–684.
11. D. Sariket, S. Shyamal, **P. Hajra**, H. Mandal, A. Bera, A. Maity, C. Bhattacharya, Improvement of photocatalytic activity of surfactant modified In<sub>2</sub>O<sub>3</sub> towards environmental remediation, *New Journal of Chemistry* 42 (2018) 2467-2475.
12. A. Bera, **P. Hajra**, S. Shyamal, H. Mandal, D. Sariket, S. Kundu, S. Mandal, C. Bhattacharya, Solvent effects on the photoelectrochemical water oxidation behaviour of TiO<sub>2</sub> semiconductors, *Materials today: proceedings* 5 (2018) 10161-10168.
13. **P. Hajra**, S. Ghosh, D. Sariket, S. Baduri, D. Ray & C. Bhattacharya, Semiconducting Bi (III) Oxides for photoelectrochemical water splitting Application, *Bulletin of Indian Society for ElectroAnalytical Chemistry* 5 (2020) 85-101.

### **Book Chapter:**

1. Fundamentals of Photocatalytic Water Splitting (Hydrogen and Oxygen Evolution), S. Shyamal, **P. Hajra**, H. Mandal, A. Bera, D. Sariket, C. Bhattacharya, *Visible Light-Active Photocatalysis: Nanostructured Catalyst Design, Mechanisms, and Applications*, Wiley, Chapter 3, 2018. (ISBN: 978-3-527-34293-8)
2. Metal Oxides Catalysts for Photoelectrochemical Water Splitting, S. Ghosh, **P. Hajra**, *Metal Oxide-Based Nanostructured Electrocatalysts for Fuel Cells, Electrolyzers, and Metal-air Batteries*, Elsevier, Chapter 6, January, 2021. (ISBN: 9780128184974)
3. Photoelectrochemical oxidation of water and degradation of pollutants using simple Bi-based metal oxide semiconductors under visible light irradiation, **P. Hajra**, S Ghosh, D Sariket, S Baduri, D Ray, C. Bhattacharya, *Nanostructured Photocatalysts*, Chapter 9, May, 2021. (ISBN: 9780128230077).

## **PAPERS PRESENTED AT CONFERENCES:**

### **International:**

- ❖ P. Hajra, C. Bhattacharya, Green Synthesis of Visible Light Active BiVO<sub>4</sub> Photoanode Suitable for Photocatalytic Water Splitting, Proc. International Conference **11<sup>th</sup>i-SAEST**, Chennai, 8-10<sup>th</sup> Dec 2016.
- ❖ P. Hajra, S. Kundu, C. Bhattacharya, Synthesis of visible light active BiVO<sub>4</sub> thin film Suitable for photocatalytic water oxidation, Proc. International Conference on Materials for the Millennium (**MATCON**), 14-16<sup>th</sup> January, 2016, CUSAT, Cochin.
- ❖ P. Hajra, Development of Bi-based Binary and Ternary Metal Oxide Semiconductors suitable for Photoelectrochemical Water Oxidation, Proc. Young Scientist's Colloquium (**YSC**)-2015, CSIR-CGCRI, Kolkata- 700 032.
- ❖ P. Hajra, S. Kundu, C. Bhattacharya, Effect of Triton-X-100 surfactant on the Photocatalytic water oxidation behavior of Bi<sub>2</sub>O<sub>3</sub> Semiconductor thin films, Proc. International Conference on Advanced Materials and Energy Technology (**ICAMET**) -2014 at IEST Shibpur, Howrah, December 17-19<sup>th</sup>, 2014.

### **National:**

- ❖ P. Hajra, S. Ghosh, R. N. Basu, Enhanced Photoelectrochemical Water Splitting by Bi doped WO<sub>3</sub> Semiconductor, MRSI-AGM 2020, 11<sup>th</sup> -14<sup>th</sup> Feb 2020, CSIR-CGCRI, Kolkata- 700032.
- ❖ P. Hajra, S. Shyamal and C. Bhattacharya, Photocatalytic activity of Bi<sub>2</sub>O<sub>3</sub> Semiconductor developed via Chemical-bath Synthesis, Research Scholar Day, 29-30<sup>th</sup> January 2014, BESUS, Shibpur.
- ❖ Oral presentation at "National Symposium on Recent Advances in Chemistry and Industry (2014)"; 1<sup>st</sup> & 2<sup>nd</sup> August, 2014, INDIAN CHEMICAL SOCIETY, Kolkata.
- ❖ Oral presentation at "National Symposium on Recent Advances in Chemistry and Industry (2015)"; 31<sup>st</sup> July & 1<sup>st</sup> August, 2015, INDIAN CHEMICAL SOCIETY, Kolkata.
- ❖ Oral presentation at "National Symposium on Recent Advances in Chemistry and Industry (2016)"; 2<sup>nd</sup> & 3<sup>rd</sup> August, 2016, INDIAN CHEMICAL SOCIETY, Kolkata.

## **PERSONAL DETAILS:**

Mother's Name: Mrs. Subha Hajra (Mallick)  
Father's Name: Mr. Himansu Sekhar Hajra  
Date of Birth: 10<sup>th</sup> July 1990  
Marital Status: Married  
Husband Name: Ananda Kumar  
Permanent Address: Vill. & P.O: Khalna, P.S: Joypur, Howrah, West Bengal, Pin -711413

## **Declarations:**

I do hereby declare that all the above information furnished is true to the best of my knowledge.

*Paramita Hajra*

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**Place: Kolkata**