

Dr. Arjun Behera
Ph. D in Chemistry
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Career Objective

A passionate urge to learn and a deep desire to be a part of the fast-growing scientific and technological world and the prospect of being at the forefront of knowledge and contributing to it has prompted me to take up a career in Chemistry. One of my long-term desires is to excel as a good researcher and academician.

Current Position:

Assistant Professor of Chemistry, Govt. College Sundargarh

Research Interests:

- Catalyst Design (Specifically metal oxide-based nanostructure materials)
- Photocatalysis (Photocatalytic Water reduction reaction, Degradation of Organic and inorganic Pollutants) Nanotechnology, Colloids and Interface Science, Materials Science, and Chemical Synthesis.
- Electrocatalysis (HER/OER)

Research Experiences:

- **Postdoctoral fellow (PDF)** at Kumoh National Institute of Technology, South Korea.
- **Institute postdoctoral fellow (IPDF) (December 2020 – August 2022)** at IIT Ropar, Punjab, India.
- **Research Assistant** (From December 2019 –November 2020), Centre for Nanoscience and Nanotechnology, SOA Deemed to be University, Bhubaneswar, Odisha, India.
- **JRF (Junior Research Fellow)** (From Sept 2018 – October 2019), Centre for Nanoscience and Nanotechnology, SOA Deemed to be University, Bhubaneswar, Odisha, India.
- **JPF (Junior Project Fellow)** (April 2016 – September 2018), Centre for Nanoscience and Nanotechnology, SOA Deemed to be University, Bhubaneswar, Odisha, India.

- **Research Assistant** (December 2019 - November 2020) Centre for Nanoscience and Nanotechnology, SOA Deemed to be University, Bhubaneswar, Odisha, India.

Google scholar:

<https://scholar.google.co.in/citations?user=RvMQnbwAAAAJ&hl=en>

Cited by	All	Since 2018
Citations	1790	1790
h-index	21	21
i10-index	25	25

Educational Qualification

Ph. D. in Chemistry SOA Deemed to be University, Bhubaneswar, Odisha, India (**02.03.2020**)

Ph.D. Title: “A study on synthesis, characterization and photocatalytic applications of modified ZnFe₂O₄ towards energy production and environmental remediation”.

M. Sc. (Chemistry) Biju Patnaik University of Technology (BPUT), Rourkela Odisha, India 2015

B. Sc. (Chemistry) Utkal University, Odisha, India 2013.

Personal Details

S/o- Ananta Behera

Date of Birth: **5th May, 1993**

Address: At/PO- Barabati, Via-Dharamasala, PS-Dharamasala, Dist-Jajpur, Odisha, Pin-755085

Nationality: Indian

Religion: Hindu

Sex: Male

Marital Status: Unmarried

Languages Known: Oriya, Hindi & English

Skills

Analytical techniques:

XRD (Rigakuminiflex), **SEM**, **BET Surface area**, **XRD**, **UV-VIS-DRS**, **FTIR**, **PL**, **GC**, **GC-MS** The electrochemical measurements were performed by multi-channel **Iviumpotentiostat**, **AUTOLAB** (electrochemical analysis).

Computer Skills:

Work experience in **MS office** (Word, Excel & PowerPoint), **Origin 8, 9**, **Photoshop**, **Casa XPS**, **Image J**, **X'pert High score Plus** and **ChemDraw**.

List of Publications in International Journals (SCI):

1. Facile synthesis of ZnFe₂O₄ photocatalysts for decolourization of organic dyes under solar irradiation. (**Beilstein J. Nanotechnol**)

Arjun Behera, Debasmita Kandi, Sanjit Manohar Majhi, Satyabadi Martha, Kulamani Parida

2. Synergistic ZnFe₂O₄-Carbon allotropes nanocomposite photocatalyst for Norfloxacin degradation and Cr (VI) reduction. (**Journal of Colloid and Interface Science**)

Arjun Behera, Sriram Mansingh, Kundan Kumar Das and Kulamani Parida

3. Constructive interfacial exciton separation of p-CaFe₂O₄@n-ZnFe₂O₄ heterojunction architect photocatalyst towards photodegradation of antibiotics. (**ACS Inorganic Chemistry**)

Arjun Behera, Debasmita Kandi, Satyabadi Martha and Kulamani Parida

4. Construction of Iso-Energetic Band Allignment Between CdS QDs & CaFe₂O₄@ZnFe₂O₄ Heterojunction: A Promising Ternary Hybrid Towards Norfloxacin Degradation and H₂ Energy Production. (**ACS, Journal of physical Chemistry C**)

Arjun Behera, Debasmita Kandi, Srikant Sahoo and Kulamani Parida

5. Facile synthesis of ZnFe₂O₄-RGO nanocomposites towards Ciprofloxacin degradation and H₂ energy production under visible light irradiation (**Journal of Colloid and Interface Science**)

Arjun Behera, Debasmita Kandi, Sriram Mansingh, Satyabadi Martha and Kulamani Parida

6. Facile synthesis and photocatalytic efficacy of UiO-66/CdIn₂S₄ nanocomposites with flowerlike 3D-microspheres towards aqueous phase decontamination of triclosan and H₂ evolution. **Applied Catalysis B: Environmental**

Ranjit Bariki, Dibyananda Majhi, Krishnendu Das, **Arjun Behera**, BG Mishra

7. Novel Magnetic Retrievable Visible-Light-Driven Ternary $\text{Fe}_3\text{O}_4@ \text{NiFe}_2\text{O}_4$ /Phosphorus-Doped $\text{g-C}_3\text{N}_4$ Nanocomposite Photocatalyst with Significantly Enhanced Activity through a Double-Z-Scheme System. (**ACS, Inorganic Chemistry**)

Priti Mishra, **Arjun Behera**, Debasmita Kandi, Satyajit Ratha, Kulamani Parida

8. Quantum confinement chemistry of CdS QDs plus hot electron of Au over TiO_2 nanowire protruding to be encouraging photocatalyst towards nitrophenol conversion and ciprofloxacin degradation. (**Journal of Environmental Chemical Engineering**)

Debasmita Kandi, **Arjun Behera**, Satyabadi Martha, Brundabana Naik, Kulamani Parida

9. Facile construction of a novel $\text{NiFe}_2\text{O}_4@ \text{P-doped g-C}_3\text{N}_4$ nano composite with enhanced visible-light-driven photocatalytic activity. (**RSC, Nanoscale Advances**)

Priti Mishra, **Arjun Behera**, Debasmita Kandi, Kulamani Parida

10. HPW anchored UiO-66 MOF: A promising photocatalyst effective towards Tetracycline hydrochloride (TCH) degradation and H_2 evolution via Z-scheme charge dynamics. (**ACS, Inorganic Chemistry**)

Satyabrata Subudhi, Sriram Mansingh, Gayatri Swain, **Arjun Behera**, Dharitri Rath, Kulamani Parida

11. Synthesis, photoelectrochemical properties and solar light-induced photocatalytic activity of bismuth ferrite nanoparticles. (**Journal of Nanoparticle Research**)

Sambhu Prasad Pattnaik, **Arjun Behera**, Satyabadi Martha, Rashmi Acharya, Kulamani Parida

12. Green Exfoliation of Graphitic Carbon Nitride towards decolorization of Congo-Red under solar irradiation. (Journal of Environmental Chemical Engineering)

Sambhu Prasad Pattnaik, **Arjun Behera**, Rashmi Acharya and Kulamani Parida

13. Polypyrrole Sensitized $\text{ZnFe}_2\text{O}_4/\text{g-C}_3\text{N}_4$: A novel n-n Heterojunction Photocatalyst for Ciprofloxacin Degradation, H_2 Evolution and Antibacterials studies. (Journal of Colloid and Interface Science)

Kundan K Das, Sulagna Patnaik, Sriram Mansingh, **Arjun Behera**, Ashutosh Mohanty, Chinmayee Acharya, Kulamani Parida

14. Facile synthesis of exfoliated graphitic carbon nitride for photocatalytic degradation of ciprofloxacin under solar irradiation. (Journal of Materials Science) (I.F=3.442)

Sambhu Prasad Pattnaik, **Arjun Behera**, Satyabadi Martha, Rashmi Acharya, Kulamani Parida

15. Bandgap engineering via Boron and Sulphur doped carbon modified Anatase TiO_2 : A Visible light stimulated Photocatalyst for Photo-Fixation of N_2 and TCH Degradation. (**RSC, Nanoscale Advances**)

Sriram Mansingh, Kundan Kumar Das, **Arjun Behera**, Satyabrata Subudhi, Sabiha Sultana, Kulamani Parida

16. Facile construction of CoWO₄ modified g-C₃N₄ nanocomposites with enhanced photocatalytic activity under visible light irradiation. (**Materials Today: Proceedings**)

Sudarsan Sahoo, **Arjun Behera**, Sriram Mansingh, Bankim Tripathy, Kulamani Parida

17. Facile synthesis of fullerene modified ZnFe₂O₄ composites towards photocatalytic H₂ evolution under visible light irradiation. (**Materials Today: Proceedings**)

Arjun Behera and Kulamani Parida

18. Novel synthesis of boron nitride nanosheets from hexagonal boron nitride by modified aqueous phase bi-thermal exfoliation method. (**Materials Today: Proceedings**)

Lopamudra Acharya, Pradeepta Babu, **Arjun Behera**, Sambhu Prasad Pattnaik, Kulamani Parida

19. Growth of macroporous TiO₂ on B-doped g-C₃N₄ nanosheets: a Z-scheme photocatalyst for H₂O₂ production and phenol oxidation under visible light. (*Inorg. Chem. Front.*, 2021)

Arjun Behera, Pradeepta Babu and Kulamani Parida

20. CdS QDs modified BiOI/Bi₂MoO₆ nanocomposite for degradation of quinolone and tetracycline types of antibiotics towards environmental remediation (**Separation and Purification Technology**)

Debasmita Kandi, **Arjun Behera**, Srikant Sahoo and Kulamani Parida

21. Calculation of relative fluorescence quantum yield and Urbach energy of colloidal CdS QDs in various easily accessible solvents (**Journal of Luminescence**)

Debasmita Kandi, Sriram Mansingh, **Arjun Behera**, Kulamani Parida

22. Exfoliated Boron Nitride (e-BN) Tailored Exfoliated Graphitic Carbon Nitride (e-CN): An Improved Visible Light Mediated Photocatalytic Approach towards TCH Degradation and H₂ Evolution (ACS, Inorganic Chemistry) (I.F=4.85)

Lopamudra Acharya, Sambhu Prasad Pattnaik, **Arjun Behera**, Rashmi Acharya, Kulamani Parida

23. A review on gC₃N₄/graphene nanocomposites: multifunctional roles of graphene in the nanohybrid photocatalyst toward photocatalytic applications (RSC, CST)

Sulagna Patnaik, **Arjun Behera**, Kulamani Parida

24. Challenges and Prospects in the Selective Photoreduction of CO₂ to C₁ and C₂ Products with Nanostructured Materials: A Review (RSC, Materials Horizon)

Arjun Behera, Ashish K Kar and Rajendra Srivastava

25. Prominence of Cu in a plasmonic Cu–Ag alloy decorated SiO₂@ S-doped C₃N₄ core–shell nanostructured photocatalyst towards enhanced visible light activity. (RSC, Nanoscale Advances)

Pradeepta Babu, Soumya Ranjan Dash, **Arjun Behera**, T Vijayaraghavan, Anuradha Ashok, Kulamani Parida

26. Pd-Embedded Ti Metal–Organic Framework Nanostructures for Photocatalytic Reductive N-Formylation of Nitroarenes in Water. (ACS Applied Nano Materials)

Ashish Kumar Kar, **Arjun Behera**, Rajendra Srivastava

27. Oxygen Vacancy-Mediated Z-Scheme Charge Transfer in a 2D/1D B-Doped g-C₃N₄/rGO/TiO₂ Heterojunction Visible Light-Driven Photocatalyst for Simultaneous/Efficient Oxygen Reduction Reaction and Alcohol Oxidation (ACS Inorganic Chemistry)

Arjun Behera, Ashish K Kar and Rajendra Srivastava

List of Patents

- EXFOLIATING LAYERED MATERIALS: A BI-THERMAL AQUEOUS METHOD FOR DELAMINATION OF LAYERED COMPOUNDS.

Kulamani Parida, Sambhu Prasad Pattnaik, **Arjun Behera**, Satyabadi

Martha, Rashmi Acharya.

Conference attended:

- Poster presentation in International seminar on “[DAE-BRNS 7th Interdisciplinary Symposium on Materials Chemistry \(ISMC-2018\)](#)” held at Bhabha Atomic Research Centre Trombay, Mumbai-400085, India (4-8 December, 2018).
- Poster presentation in 2nd national work shop on “[Development of Nanomaterials for Energy, Environment and sustainability \(DNEES-2016\)](#)” held in ITER, SOA Deemed to be University, Bhubaneswar, Odisha, India (9-10 May, 2016).

- Poster presentation in “[International Conference on Nanomaterials for Energy, Environment and sustainability \(ICNEES-2019\)](#)” held in ITER, SOA Deemed to be University, Bhubaneswar, Odisha, India (20-22 December, 2019).
- Poster presentation “[International conference on Functional materials; Synthesis, Characterization and Applications \(ICFM-2019\)](#)” held in College of Engineering and Technology (Autonomous), Bhubaneswar, Odisha, India (28-30 November, 2019).
- Oral presentation in National Conference on “[Recent Advances in Energy, Environment and Health Sciences \(RAEEHS-2019\)](#)” held in ITER, SOA Deemed to be University, Bhubaneswar, Odisha, India (18-19 October, 2019).
- Poster presentation in National Conference on “[Green Technology for Clean Environment \(GTCE-2019\)](#)” held in ITER, SOA Deemed to be University, Bhubaneswar, Odisha, India (20 May, 2019).
- Participated in “[Science Academies’ Lecture Workshop on Organic and Inorganic Self Assembly](#)” held in KIIT University, Bhubaneswar, Odisha (21-22 February, 2015).
- Completed a Short term course on “[Quantum Chemistry](#)” held in College of Engineering and Technology (Autonomous), Bhubaneswar, Odisha, India (23-28 September, 2013).

Awards:

- **Listed in the World Top 2% Scientists** list in 2022 created by Stanford University/Scopus, Elsevier
- **Securing position in AD scientific index-2023 India top 10000 Scientist** survey made by AD scientific index Ltd. World scientist and university ranking.
- JPF (Junior Project Fellow) DST-SERB Govt. of India (2016).

- CSIR NET (LS) Qualify (Govt. of India) June-2018.

DECLARATION

I hereby declare that all the statements made by me are true and complete to the best of my knowledge and belief.

References:

1. Prof. Kulamani Parida

Director, Centre for Nano Science and Nano technology ITER, Siskha 'O' Anusandhan Deemed to be University, Bhubaneswar, Odisha.

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2. Prof. Rajendra Srivastava

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