LUTUKURTHI D. N. V. V. KONDA
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Education

- **Ph.D.** in Chemical Engineering (2021)

  Indian Institute of Technology (ISM), Dhanbad Jharkhand, India.

  Thesis title: Synthesis and Characterization of metal oxides and metal oxide based nanocomposite photocatalyst materials.

  Thesis Advisor: Prof. Suman Dutta, Department of Chemical Engineering, IIT(ISM), Dhanbad.

- **M. Tech.** in Chemical Engineering (2011)

  National institute of technology (NIT), Tiruchirappalli, Tamilnadu, India.

  Thesis title: CFD simulation of heat and mass transfer characteristics in bubble columns

  Thesis Advisor: Prof. P. Sivashanmugam, Department of Chemical Engineering, NIT Tiruchirappalli.

- **B. Tech.** in Chemical Engineering (2009)

  Jawaharlal Nehru Technological University (JNTU), Anantapur, Andhra Pradesh, India.

Work Experience

- March 2013 onwards: Assistant Professor,
  Department of Chemical Engineering,
  IIT (ISM), Dhanbad, Jharkhand, India.
- June 2012 – Nov 2012: Adhoc Lecturer,
  Department of Petroleum & Petrochemical Engineering,
  JNTU, Kakinada, Andhra Pradesh, India.
- Mar 2012 – May 2012: Trainee Project Engineer,
  R. P. Engineers & Project consultants Pvt. ltd,
  Mumbai, Maharashtra, India.

Theory Courses Taught

Undergraduate Level

Heat Transfer
Mechanical Operations
Elements of Biochemical Processes
Fluidization Engineering
Chemical Process Plant Design and Economics
Chemical Kinetics and Reaction Engineering
Modelling and Simulation
Chemical Process Equipment Design

Postgraduate Level

Optimization of Chemical processes
Advanced Numerical Methods for Chemical Engineers
Introduction to Biochemical Engineering
Unit Operations for Pharmaceutical Science & Engineering
Reaction Engineering for Pharmaceutical Science & Engineering

Areas of Research Interest

- Photocatalysis
- Synthesis and characterization of nanomaterials
- Biodiesel
- Wastewater treatment
- Modelling and Numerical Simulation
- Solar energy utilization for photo-chemical processes

Research activity:

My primary research interest lies in the field of synthesis and characterization of metal oxide-based nanomaterials with enhanced physicochemical properties for energy and environmental remediation-related applications. This work includes the design and synthesis of photocatalyst materials with tunable surface properties, modification of photocatalysts for sunlight activation, immobilization of catalysts on solid surfaces, and design of efficient photocatalytic reactors. Research is ongoing on applying advanced oxidation processes for energy and environmental-related applications at the advanced functional materials lab (Room No. 421, 4th floor, new academic complex) of the Department of chemical engineering, IIT(ISM) Dhanbad.

Significant research contributions:

i. Designed simple one pot synthesis methods for the synthesis and in-situ modification of porous metal oxide photocatalysts for wastewater treatment.
ii. Design and development of multifunctional magnetic materials.

iii. Developed nano-catalysts with bifunctional attributes for biodiesel synthesis application.

iv. Designed and fabricated simple batch laboratory photocatalytic setup for research work on photocatalytic dye degradation.

v. Designed and fabricated 8 L capacity continuous photoreactor for research work on wastewater treatment.

Professional Membership

Life Member, Indian Institute of Chemical Engineers (IIChE)

Research Guidance

Ph. D. Supervision (Completed/Ongoing): **Nil**

***M.Tech*-Completed:**

1. Hassam Mazhar (2016), Photocatalytic dye degradation studies on TiO_2 immobilized on light weight clay aggregates.

2. Shikha Sinha (2016), Preparation and characterization of Nitrogen modified TiO_2 for visible light response.

3. Tara (2020), Solution combustion synthesis of magnetic Zinc-ferrite photocatalyst

***M.Tech*-Ongoing:**

1. Neha Kumari (2023), Synthesis and characterization of nanocomposite metal oxide photocatalysts for visible-light photocatalysis.

2. Vinod Swain (2024), Synthesis and characterization of Carbon-based photocatalysts for visible light photocatalysis.

Details of Research Projects and Funding

Completed

1. *Project title & Role:* Design and Development of a Novel Continuous Photocatalytic Reactor for Wastewater Treatment & PI

   Funding Agency & amount: Faculty Research Scheme (FRS) of IIT(ISM) & 5.80 lakhs

2. *Project title & Role:* Synthesis and Characterization of Nanocomposite Materials for Photocatalytic Applications & PI

   Funding Agency & amount: TEQIP-II & 2.00 lakhs

Publications

1. Akash Pratim Bora, **Lutukurthi D. N. V. V. Konda**, Paidinaidu Paluri & Krishna Sandilya Durbha, Valorization of hazardous waste cooking oil for the production of eco-friendly biodiesel using a low-cost bifunctional catalyst, *Environmental Science and Pollution Research*, 30 (2023), 55596–55614. **IF: 5.19 (Q2).** https://doi.org/10.1007/s11356-023-26177-0
2. Akash Pratim Bora, **Lutukurthi D. N. V. V. Konda**, Srinivas Pasupuleti, Krishna Sandilya Durbha, Synthesis of $MgO/MgSO_4$ nanocatalyst by thiourea–nitrate solution combustion for biodiesel production from waste cooking oil, *Renewable Energy*, 190 (2022), 474-486. **IF: 8.00 (Q1).** https://doi.org/10.1016/j.renene.2022.03.127
3. **D.N.V.V.K. Lutukurthi**, S. Dutta, D.K. Behara, Dual role of activated carbon as fuel and template for solution combustion synthesis of porous Zinc Oxide (ZnO) powders, *Journal of American Ceramic Society*, 104 (2021), 4624-4636. **IF: 3.5 (Q1)**. https://doi.org/10.1111/jace.17841
4. **D.N.V.V.K. Lutukurthi**, S. Dutta, D.K. Behara, Effect of ignition temperature and fuel amount on photocatalytic activity of solution combustion synthesized ZnO, *Ceramics International*, 46 (2020), 22419-22428. **IF: 3.83 (Q1).** https://doi.org/10.1016/j.ceramint.2020.05.324
5. **Lutukurthi D N V V Konda**, P Sivashanmugam, CFD Simulation of heat transfer characteristics in pilot plant scale bubble column, *IUP Journal of Chemical Engineering*, III (2011), 39-52.

Papers Presented at International/National conferences:

1. **Lutukurthi D N V V Konda**, CFD Simulation of mass transfer characteristics in bubble column, International Conference on Chemical and Bioprocess Engineering-India (ICCBPE-IN, 2013), 16-17 November 2013, National Institute of Technology Warangal, Andhra Pradesh.
2. **Lutukurthi D N V V Konda**, Photocatalytic activity and characterization of solution combustion synthesized zinc oxide, CHEMCON 2016, 27-30 December 2016, IIT Madras, Anna University and CLRI Chennai, Tamilnadu.

Courses / Workshops Participated & Organized:

1. Attended **Summer Faculty Research Fellow Programme-2015** to spend summer for doing research under the guidance of a faculty mentor (Prof. K. K. Pant, Chemical Engineering Department) of IIT Delhi. During my stay from 15/05/2015 to 10/07/2015, I have got trained on various catalyst characterization techniques and performed experiments on photocatalytic degradation of dyes.
2. Participated in the Industry-Academia workshop on "Instrumentation & Control"organized by Petroleum Federation of India and Lovraj Kumar Memorial Trust (LKMT) in association with Haldia Refinery, IOCL during November 10-11, 2014 at Indian Oil Management Academy, Haldia, West Bengal.
3. Participated in workshop on "Intellectual Property Rights" (Under TEQIP-II Initiative) dated 14th February, 2014 Indian School of Mines, Dhanbad.
4. Participated in workshop on "Ethics and professional values in technical education" (Under TEQIP-II Initiative) dated 5thAugust, 2016IIT(ISM), Dhanbad.
5. Participated in short-term course "coal to chemicals" during January 24-28, 2018 at Chemical engineering department, IIT(ISM), Dhanbad
6. Participated in the Industry-Institute Interaction workshop on 03-02-2018 at IIT(ISM), Dhanbad.
7. Attended 2021 BASF sponsored virtual CCPS Faculty Workshop on process safety organized by AIChE's Center for Chemical Process Safety (CCPS).
8. Actively involved in organizing a two day workshop on "Energy Resources: Future Prospects of Fuel andChemicals" on 07-08 November 2016 at department of chemical engineering, IIT(ISM), Dhanbad and also performed various duties as a faculty in-charge of registration, certification and cultural activity committees.
9. Actively involved in organizing a two day workshop on "Advances in solid fuel processing and conversion technologies" on 29-30 January, 2018 at department of chemical engineering, IIT(ISM), Dhanbad and also performed various duties as a faculty in-charge of registration and certification.

Responsibilities undertaken @ IIT (ISM)

Institute level

- ✓ **Warden**, Jasper Hostel from 1st July, 2022 – till date
- ✓ Faculty representative from the Department of Chemical Engineering in the Institute's Time-Table Committee (TTC) from 1st January, 2020 –1st January, 2023
- ✓ Member of Gymkhana election team-2019
- ✓ Performed Invigilation duties at the institute level (2013-2014 & 2014-2015)
- ✓ Served as a *Micro Observer* for General Elections Jharkhand (May 2014) and for Assembly Elections Jharkhand (December 2019)

- ✓ Served as a member of teacher advisor (anti-ragging squad) for the newly admitted students in 2013-14, 2014-15, 2015-16 and 2016-17 academic sessions
- ✓ Tabulator for the Department of Chemical Engineering for the monsoon and winter semester (Regular/ Special) examinations for the sessions 2013-14 and 2014-15

Department level:

- ✓ Currently, Member of various Departmental committees: DPGC, DAC, Space committee, and CHES
- ✓ Served as DUGC member
- ✓ Faculty-in-Charge, Research Lab – III and Reaction engineering UG lab.
- ✓ Member, Departmental Course Distribution & Time Table Committee since January, 2020.
- ✓ As a first computer lab in-charge of the department (2013 to 2015), taken initiative to establish the department computational facilities required for UG & PG teaching laboratories and research activities. In this connection, procured the ANSYS CFD, Matlab, Aspen Plus and Origin software packages and actively involved in the design of simulation lab experiments.
- ✓ In-charge of Mechanical Operations lab (2013 to 2015) & Particle size analysis lab (2015 to till date).
- ✓ Member of BOCS committee for the B.Tech programme (Minor & Major) in Chemical Engineering and M.Tech programme in Chemical Engineering.
- ✓ Member of department budget advisory committee for the year 2018
- ✓ Member of furniture advisory committee for the year 2018
- ✓ Member of computing system coordination committee for the year 2018
- ✓ Undertaken Industrial visit to SAIL Bokaro Steel plant, Bokaro for 2^{nd} yea/ 4^{th} semester Chemical Engineering students 2011-15 batch.
- ✓ Undertaken Industrial visit to Projects & Development India Ltd., Sindri, Dhanbad for 2^{nd} year/4^{th} semester Chemical Engineering students 2012-16 batch.
- ✓ Undertaken Industrial visit to Haldia Petrochemicals Ltd., Haldiafor 2^{nd} year/3^{rd}(2012-16 batch) semester and 3^{rd} year/5^{th}(2011-15 batch) semester Chemical Engineering students.
- ✓ As an in-charge of Mechanical Operations laboratory lab manual was prepared according to the course syllabus and necessary steps were taken for the further development of the existing lab facilities.
- ✓ Prepared the laboratory manual for the courses fluid and particle mechanics lab (CHC205), Mechanical Operations Lab (CHC 15201), and chemical reaction engineering lab (CHC16201).

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