Curriculum Vitae

Deepak Kumar Ojha, Ph.D.

ORCID: 0000-0002-7961-4843

Dr. Deepak Kumar Ojha
Department of Chemical Engineering
Indian Institute of Technology Roorkee
Uttarakhand 247667 (India)
Email: dojha@ch.iitr.ac.in/ deepakojha86@gmail.com
Telephone: +91-1332-284945
Mobile: +91-8056224285

Professional Experience:

Indian Institute of Technology Roorkee **July 2020- Continue**
Research Interests: Biomass conversion to Biofuel using pyrolysis, Biooil Aging Estimation and Prevention, Biomass combustion, Biomass-Coal Blend Combustion, Syngas Conversion to NH_3 using Low-Pressure Process

University of Minnesota, USA **July 2017—July 2020**
Research Interests: Low pressure single pot ammonia synthesis, ammonia synthesis using absorber based process, Pilot plant design and operation
Advisors: Prof. Edward Cussler, Prof. Alon McCormick, Prof. Paul Dauenhauer

Education:

Ph.D. Indian Institute of Technology Madras **Jan2013 - July 2017**

Thesis Title: Fundamentals of Fast (Co) Pyrolysis of Lignocellulosic Biomass and Polymers for Resource Recovery

Advisor: Prof. R. Vinu

M.E. Birla Institute of Technology & Science Pilani **Aug 2010- Dec 2022**

Thesis Title: Design of Chilled Ammonia Process (CAP) for single step CO_2 capture and utilization

B.Tech Sathyabama University, Chennai **July 2005- June 2009**

Patent

- Integrated Apparatus for Producing Ammonia, US Patent No: US20200325030A1, Published: Jan. 16, 2024.

Publications:

- Chaitanya, H.K.; Ojha, D.K. Life cycle and environmental impact assessment of blended gasoline, Journal of Environmental Chemical Engineering (under review).
- Prasad, A; Ojha, D.K. Valorization of textile wastes into value-added products using pyrolysis, Bioresource Technology (submitted)
- Singh, D.K., Singh, A., Ojha, D.K. Integrated Experimental and Computational Analysis of Combustion and Pyrolysis Behavior in Rice Straw and High-Ash Indian Coal Blends, Journal of Thermal Analysis & Calorimetry (Under Review)
- Jogi, K; Jha, P.K.; Ojha, D.K. Hybrid Modelling of Forest Fires Using Monte Carlo Simulation, Journal of Computational Science (Under review)
- Ojha, D.K.; Singh, A.; Singh, D.K. Chemical Engineering prospective of pyrolysis reactor and condenser system for biomass valorization, Sust. Chem. Clim. Action, 2024, 5, 100046.
- Meena, M.K.; Bhaskar, T.; Gourishetty, A.K., Ojha, D.K.; Ionizing radiation as a pretreatment technique on the valorization of rice straw, Int. J. Green Energy, 2023, DOI: 10.1080/15435075.2023.2234988
- Goyal, I; Prasad, A; Kumar, S.; Ojha, D.K. Techno-Economic Analysis of Integrated Torrefaction and Pelleting Process, Int. J. Green Energy, 2023, DOI:10.1080/15435075.2023.2232857
- Meena, M.K; Anand, S.; Ojha, D.K. Interdependency of pyrolysis and combustion: A case study for Lignocellulosic biomass, Journal of Analytical and Applied Pyrolysis, J. Therm. Anal. Calorim. 2023, 148, 5509.
- Bariha, N.; Ojha, D.K.; Srivastava, V.C.; Mishra, I.M. Fire, and risk analysis during loading and unloading operation in liquefied petroleum gas (LPG) bottling plant, J. Loss Prev. Process Ind. 2023, 81, 104928.
- Ojha, D.K.; Vangala, S.P.K.; Vinu, R. Analytical pyrolysis of bagasse and groundnut shell briquettes: Kinetics and pyrolysate composition studies, Bioresour. Technol. Rep. 2021, 15, 100784.
- Ojha, D.K.; Vinu, R. Fast pyrolysis kinetics of lignocellulosic biomasses of varying composition, Energ. Convers. Manage.:X 2021, 9, 105382.
- Ojha D. K.;…. Cussler E.L. Desorption in Ammonia Manufacture from Stranded Wind Energy, ACS Sustain. Chem. Eng. 2020, DOI:10.1021/acssuschemeng.0c03154
- Mathew J.K.; Ojha D.K.;…. Cussler E.L. Optimizing Ammonia Absorbents for Sustainable Synthesis, ACS Appl. Energ. Mat. 2020, 3 (3), 2576–2584
- Ojha D.K.; Mathew J.K.; McCormick A.V.; Reese M.; Dauenhauer P.; Cussler E.L. Integrated Ammonia synthesis and Separation, ACS Sustain. Chem. Eng. 2019, 7(23), 18785-92.
- Ojha D.K.; Viju, D.; Vinu, R. Fast pyrolysis Kinetics of Alkali Lignin: Evaluation of apparent rate parameters and product time evolution, Bioresour. Technol. 2017, 241, 142- 151.
- Ojha, D.K.; Shukla, S.; Sachin, R.S.; Vinu, R. Understanding the interactions between cellulose and polypropylene during fast co-pyrolysis via experiments and DFT calculations, Chemical Engineering Transactions 2016, 50, 67- 72
- Ojha, D.K.; Vinu, R. Fast co-pyrolysis of cellulose and polypropylene using Py-GC/MS and Py-FTIR, RSC Adv. 2015, 5, 66861-66870
- Tripathi, A.K.; Ojha, D.K.; Vinu, R. Selective production of valuable hydrocarbons from waste motorbike engine oils via catalytic fast pyrolysis using zeolites, J. Anal. Appl. Pyrol. 2015, 114, 281-292.
- Ojha, D.K.; Vinu, R. Resource Recovery via catalytic fast pyrolysis of polystyrene using zeolites, J. Anal. Appl. Pyrol. 2015, 113, 349-359

- Suriapparao, D.V.; Ojha, D.K.; Ray, T.; Vinu, R. kinetic analysis of co-pyrolysis of cellulose and polypropylene, J. Therm. Anal. Calorim. 2014, 117, 1441-1451

Book Chapters:

- Ojha, D.K.; Vinu, R. Co-pyrolysis of lignocellulosic biomass with waste plastics for resource and energy recovery, In: Pandey, A.; Bhaskar, T.; Mohan, S.V.; Lee, D.-J.; Khanal, S.K. (Eds.), Waste Biorefinery: Potential and Perspectives, Elsevier, 2018, ISBN: 978-0444639929
- Vinu, R.; Ojha, D.K.; Nair, V. Polymer pyrolysis for resource recovery. In: Reedijk, J. (Ed.) Elsevier Reference Module in Chemistry, Molecular Sciences and Chemical Engineering. Waltham, MA: Elsevier. 2016, doi: 10.1016/B978-0-12-409547-2.11641-5.

Invited Talk:

1. Ojha, D.K., Prasad, A. Valorization of textile waste into value-added products (Invited Talk), PyroAsia-2024, 27-28 Nov. 2024, IIT Guwahati, India
2. Ojha, D.K. Application of thermal analysis in the development of biomass valorization technology (Invited Talk), 18th ICTAC-2024, 02-07 Sept. 2024, IIT Madras.
3. Ojha, D.K. Decarbonizing ammonia manufacturing (Invited Talk), 3rd International Conference on Waste, Energy & Environment (ICWEE- 2023), 5-7 July 2023, Sathyabama University Chennai, India

Sponsored Projects:

- Ojha, D.K. Bharati, R.P. Project titled "Clean hydrogen (Zero CO_2) production using methane pyrolysis in the molten salt reactor, SERB-CRG, **45.32 Lakh,** Ongoing
- Ojha, D.K., Sharma, A.K. Design and Demonstration of Electrochemical, molten salt-based process for green ammonia synthesis, THDCI Ltd., **62 Lakh**, Ongoing
- Ojha, D.K., Fundamentals of reactive pyrolysis of biomass for resource recovery, SRIC-IIT Roorkee, **₹20 Lakhs**, Completed
- Kumar, S.; Ojha, D.K.; Reddy N.S.M. Co-production of Green Hydrogen and Biochar from Biomass, THDCI Ltd, **59.7 Lakh**, Ongoing
- Kumar, S.; Ojha, D.K. Conversion of coal tar pitch and natural fiber (lignocellulosic biomass) to carbon fiber,NTTM (Textile Ministry), **₹50.0 Lakhs**, Ongoing
- Reddy, S.N.; Ojha, D.K. Scale-up Studies on In-situ co-hydrothermal synthesis of nanometal carbon hybrids and H_2-rich CNG from metal contaminated wastewater and biomass, DST-WMT, ₹**221.15 Lakhs**, Ongoing

---

Consultancy Projects:

- Ojha, D.K. Solid and Liquid Effluent Analysis and Charecterization for its Commercial Use, NSMR PVT LTD Uttarakhand, **4.425 Lakh**, Completed

---

Recognition/Awards:

- Recipient of DST Travel Grant (2016)
- Life Associate Member of Indian Institute of Chemical Engineers (Since 2020)

Administrative Responsibilities:

- Currently serving as officer in charge, Department Store Since 2022.
- Currently serving as officer in charge, Training & Placement Since Jan. 2023.
- Served as Convener of an International Conference (Chemical Engineering: Transition Towards Sustainable Future) organized by the department of Chemical Engineering , IIT Roorkee, during July 8-11, 2022.
- Served as Secretary of the Department Academic Program Committee (DAPC) during 2021-2022.
- Seved as Convener of Department Safety Committee (DSC) during 2021-22.
- Served as Chief Warden of Himgiri Apartment, IIT Roorkee during 2020-22.

Student Supervision:

- Ph.D. : Total 3 (Graduated:1, Ongoing:2)
- M.Tech: Total 4 (3 Graduated)
