Stanford

Mainak Mukherjee

Postdoctoral Scholar, Energy Resources Engineering

Bio

BIO

I am a Postdoctoral scholar at the Energy Science and Engineering Department at Stanford University. My research in energy systems involves a broad range of activities from strategy making, consulting, project management, and modeling. Besides, I focus on technical interventions and recommendations related to industrial energy use, resource efficiency, net-zero: decarbonization pathways, and the inception of advanced/new energy systems, NBS, into the existing infrastructure. Furthermore, understanding the enormous need to address climate change, my attempt is to propel a mutual fix between industrial decision-making and academic research by upscaling sustainable awareness.

HONORS AND AWARDS

- Best Paper award, IEMRE 2022, IEEE conference Kolkata, India (2022)
- Award for performance (quarterly), EY, India (2021)
- Best Paper award, International Conference AIR 2021, Dehradun. India (2021)
- Conference Travel Awards, University of Lorraine, France (2017-2020)
- Ph.D. Fellowship, Ministry of Higher Education Research and Innovation (MESRI), Government of France (2017-2020)

PROFESSIONAL EDUCATION

- Ph.D, Laboratoire Réactions et Génie des Procédés- CNRS, Universite de Lorraine, Nancy, France , Process and Energy Engineering (2020)
- M.Tech, University of Petroleum & Energy Studies, Dehradun. India , Energy Systems (2016)
- B.E, Nagpur University, India , Mechanical Engineering (2012)

STANFORD ADVISORS

- Adam Brandt, Postdoctoral Faculty Sponsor

LINKS

- The Archie Initiative: https://archieinitiative.org/about
- Google Scholar: https://scholar.google.fr/citations?user=ggiFqaIAAAAJ&hl=en
- LinkedIn: https://www.linkedin.com/in/mainak-mukherjee-35790157/

Research & Scholarship

RESEARCH INTERESTS

- Environmental Education
- Leadership and Organization

- Research Methods
- Science Education
- Technology and Education

CURRENT RESEARCH AND SCHOLARLY INTERESTS

OPGEE or Oil Production Greenhouse Gas Emissions Estimators is a robust modeling and simulation tool that enables carbon intensity accounting in terms of gCO2eq/MJ.

Emissions value chain analysis for natural gas midstream operation

PROJECTS

- OPGEE Model development and advances for Global oil and gas carbon intensity estimations - Stanford University (2/10/2022 - present)
- Greenhouse gas emissions from liquified natural gas systems: Process-model based life cycle assessment of liquefaction, shipping, and regasification (LSR) - Stanford University (2/10/2022 - present)

LAB AFFILIATIONS

- Adam Brandt, EAO (2/10/2022 - - 2/9/2024)

Publications

PUBLICATIONS

- **Survey-based assessment for strategic deployment of renewable energy resources for selected places in India: enabling advances in framework responsibility** *ENERGY SOURCES PART A-RECOVERY UTILIZATION AND ENVIRONMENTAL EFFECTS*
  Mukherjee, M., Sharma, A.
  2024; 46 (1): 1873-1889
- **Reutilization of Industrial Bio-wastes as a Potential Feedstock for the Production of Green Hydrogen and Subsequent Usage** *Renewable Resources and Energy Management*
  Mukherjee, M., Sharma, A. K.
  CRC Press.2023; 1: 282-289
- **Sustainable Approach in Utilizing Bioenergy Commonly for Industrial Zones by Limiting Overall Emission Footprint** *Renewable Energy Innovations: Biofuels, Solar, and Other Technologies*
  S, P. K., Mukherjee, M., Puri, R., Singhal, S.
  Wiley.2023; 1
- **An Indian Viewpoint on Promoting Hydrogen-Powered Vehicles: Focussing on the Scope of Fuel Cells** *Green Technologies for Sustainable Production*
  Mukherjee, M., Sharma, A. K.
  Wiley.2023; 1
- **Assessment of Sustainable Biogas Production from Co-Digestion of Jatropha De-Oiled Cake and Cattle Dung Using Floating Drum Type Digester under Psychrophilic and Mesophilic Conditions** *CLEAN TECHNOLOGIES*
  Sharma, A., Sahoo, P., Mukherjee, M., Patel, A.
  2022; 4 (2): 529-541
- **Enabling Resource Efficiency Through Reduce, Reuse, and Recycling—A Perspective on "Industrial Networking"** *Recent Advances in Recycling Engineering*
  Mukherjee, M., Singhal, S., S, P. K., Sharma, A. K.
  Springer.2022
- **Possible linkage between eco-industrial parks and nature-based solutions from an Indian perspective** *Current Science*
  Mukherjee, M.
  2022; 123 (12): 1426-1427

- **Estimation of through-plane and in-plane gas permeability across gas diffusion layers (GDLs): Comparison with equivalent permeability in bipolar plates and relation to fuel cell performance** *INTERNATIONAL JOURNAL OF HYDROGEN ENERGY*
  Mukherjee, M., Bonnet, C., Lapicque, F.
  2020; 45 (24): 13428-13440

- **Long term study of directly hybridized proton exchange membrane fuel cell and supercapacitors for transport applications with lower hydrogen losses** *JOURNAL OF ENERGY STORAGE*
  Arora, D., Bonnet, C., Mukherjee, M., Arunthanayothin, S., Shirsath, A. V., Lundgren, M., Burkardt, M., Kmiotek, S., Rael, S., Lapicque, F., Guichard, S.
  2020; 28

- **Direct hybridization of PEMFC and supercapacitors: Effect of excess hydrogen on a single cell fuel cell durability and its feasibility on fuel cell stack** *ELECTROCHIMICA ACTA*
  Arora, D., Bonnet, C., Mukherjee, M., Rael, S., Lapicque, F.
  2019; 310: 213-220

- **Energy Efficiency Measures Across Key Sectors in India-An Approach Towards Climate Change**
  Nahar, A., Hasib, A., George, G., Mukherjee, M., Siddiqui, N. A., Tauseef, S. M., Bansal, K.
  SPRINGER-VERLAG SINGAPORE PTE LTD.2018: 29-34

- **Effectuation of Renewable Energy as an Effective Mitigation Approach Towards Climate Change**
  Saraswat, J., Agarwal, V., Mukherjee, M., Siddiqui, N. A., Tauseef, S. M., Bansal, K.
  SPRINGER-VERLAG SINGAPORE PTE LTD.2018: 21-28

- **A Review of Vehicular Pollution and Control Measures in India**
  Rastogi, A., Rajan, A. V., Mukherjee, M., Siddiqui, N. A., Tauseef, S. M., Bansal, K.
  SPRINGER-VERLAG SINGAPORE PTE LTD.2018: 237-245

- **Quantifying GHG Estimations for Agriculture, Waste, and Land Use, land Use Change and Forestry (LULUCF) for a Village Model in India** *Nature Environment and Pollution Technology*
  Simon, P., George, G., Mukherjee, M.
  2018; 17 (1): 339-347

- **A Vision of IoT: Applications, Challenges, and Opportunities with Dehradun Perspective** *International Conference on Intelligent Communication, Control and Devices*
  Mukherjee, M., Adhikary, I., Pundir, M.
  2016

- **Ambit of Carbon Capture Technology in India** *International Journal of Physics, Chemistry and Astronomy*
  Mukherjee, M.
  2015; 59: 46-52

- **India's initiatives on environmental safeguarding - sustainability** *International Letters of Natural Sciences*
  Mukherjee, M.
  2015; 47: 32-41