HELLO, I AM

Avaneesh Kumar

I am a Ph.D. research scholar at the Department of Chemical Engineering, Indian Institute of Technology (IIT) Roorkee, under the guidance of Prof. T.N. Das. I hold a **B. Tech** degree in Chemical Engineering from **MANIT BHOPAL** and **M. Tech** degree in Chemical Engineering & Technology from **IIT (BHU) Varanasi**. My research interests lie in the challenging and fascinating domain of catalysis and Hydrogen generation/storage techniques. Through my research, I aspire to contribute to the scientific community and address some of the pressing issues faced by the industry today.

PMRF PROJECT DETAILES

Title: A thermochemical study of metal hydrides for storage/generation of hydrogen: A renewable energy source

One paragraph of summarized detail about your work

The development of efficient and secure materials for storing hydrogen that have excellent heats of combustion (141.865 MJ/kg) has been sparked by the push towards a greener, renewable energy economy. Metal hydrides (MHs) (e.g.- MgH_2, $NaAlH_4$, $NaBH_4$, NaH, $LiAlH_4$, $LiBH_4$, $Zn(BH_4)_2$, KBH_4, etc.) have emerged as a hopeful option due to their remarkable ability to store large amounts of hydrogen and their potential for reversible uptake and release of the gas. In order to apply metal hydrides as a hydrogen storage solution, this research proposal aims to conduct a detailed experimental approach, analysis of the properties, synthesis methods, and performance enhancement in metal hydrides with various additives/catalyst.

Acadamic prfile

B.Tech collage name , time span , city and state

MANIT B h o p a l , 2014-2018, Bhopal, Madhya Pradesh

M.Tech collage name , time span , city and state

IIT (BHU), Varanasi 2020-2022, Varanasi, Uttar Pradesh

Ph.D collage name , time span , city and state

IIT Roorkee, 2022-2026, Roorkee, Uttarakhand

Intermediate school name , time span , city and state

Archana Memo. SGM Inter College, Etawah, 2010-

2012, Uttar Pradesh

Secondary school name, time span , city and state

Saraswati U M Vidyalaya, Motijheel Etawah, 2009-

2010, Uttar Pradesh

Research

Previus reseach project

Synthesis of Zinc Oxide Nanoparticles with Varying Fuel Composition to Optimize Electrochemical Performance for Supercapacitor Electrode

Journal papers

Synthesis of Zinc Oxide Nanoparticles with Varying Fuel Composition to Optimize Electrochemical Performance for Supercapacitor Electrode **(Under Review)**
Journal: Inorganic and nano metal chemistry

Conferences
ICECEES 2024, IIT Roorkee

Ph.D supervisor information and link

Prof. Taraknath Das is working as Associate Professor in the Department of Chemical Engineering at the Indian Institute of Technology (IIT) Roorkee. Before joining IIT Roorkee, he worked as a postdoctoral fellow at the Department of Chemical and Materials Engineering at KIST, Seoul, South Korea. He obtained his M.E. Chemical Engineering, in 2007 from Jadavpur University, West Bengal, India. He completed his B.Sc-B.Tech., Chemical Engineering from the University of Calcutta in 2005, West Bengal, India. His primary research focus is in the area of Heterogeneous catalysis and spectroscopy: Supported metal/metal oxide catalysis: synthesis, characterization and activity, Also interested on reforming reaction of hydrocarbons, In situ Spectroscopy (FTIR): In situ adsorption and reaction studies (Operando spectroscopy), Hydrogen Energy: Production, Storage and Generation.

Link.
https://iitr.ac.in/Departments/Chemical%20Engineering%20Department/People/Faculty/100705.html

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Teaching assistantship

Pic (ABN School)

Adarsh Bal Niketan Senior Secondary School, Roorkee
Serving as a mathematics teaching assistant (November 2023 - present)

Sharing and providing technical insights to students (November 2023 - present)

IIT Roorkee

Serving as a teaching assistant for UG Mass Transfer (January 2023 - present)
Serving as a teaching assistant for FE-SEM, (Ultra Plus) IIC, IIT Roorkee (July 2023 - present)
Served as a teaching assistant for Process dynamic and control lab experiments (July 2023 – November 2023)

Your CV pdf file if an (find pdf attached)

Use this link as reference : https://arisha-sharma.netlify.app/

Required files :

Clear and formal picture of you: done

Clear and formal picutre of your guide:

done

Your CV pdf (if any)

One dedicated email with password for form configuration.
avaneesh_k@ch.iitr.ac.in