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Dr. Md. Hasan Zahir

Research Scientist-II/ Associate Professor

Interdisciplinary Research Center for Renewable Energy and Power Systems (IRC-REPS)

King Fahd University of Petroleum & Minerals, Saudi Arabia

Executive Summary

Materials synthesis & application Scientist with more than 25 years of experience as an adviser, expert, manager, and trainer in domestics and industrial renewable energy/Solid Oxide Fuel Cells/De-Nox catalysts/ H₂ gas separation management projects. Has a strong background in:

Expertise in the powder processing, and characterization, ceramic film/pellet processing, ceramic science, and sintering.

R&D experiences: in ceramic solid-state electrolyte development. Thermal energy storage using phase change materials.

Ability to work within project teams with dedication and technical excellence. Manage multiple projects at the same time.

Hands-on Activities :Hydrothermal, Sol-Gel powder and/or catalysts, Performed honeycomb catalysts for De-NO_x. Inorganic membrane fabrication for gas separation, Solid-oxide fuel cell fabrication, Air-Stable Anion-Radical Phthalocyanine.

Education

- ☐ PhD Chemistry (Material Reaction) (Kobe University, 1995)
- ☐ MSc Applied Chemistry
- ☐ BSc Applied Chemistry

Distinguished Projects

- 2011-2013), Project no: 10-ADV1367-04, Project Title: Development of YSZ-Based Porous Tubular Anode Support and Dense Single Grain Electrolyte Layer for Solid Oxide Fuel Cell, Funding Authority: NSTIP, Budget: 19400,000 SR. **Role: PM**
- 2013-2015), Project no: At-32-21, Project Title: Nanocrystalline Composite Oxides Membranes for Hydrogen Gas Separation and its Hydrothermal Stability, KACST, Budget: 9,800,000 SR. **Role: PM**
- 2013 to 2015), Project no: KACST ARP 34-79, Project Title: Self-Assembly of Janus-Dendrimers into Nanostructured Supramolecular Architectures, Funding Authority: KACST, Budget: SR 1,306,000.00 SR, **Role: Co-I**
- 2013 to 2015, Project no: KAP-11-616, Title: Molybdenum (Mo) based Dispersed Catalysts for Heavy Oil Upgrading, Role: Co-Investigator, Funding Authority: KACST, Budget: 1,462,000 SAR. **Role: Co-I**
- 2013- 2015, Project no: 12-ENE3204-04, Title: Solar harvesting of surface-modified lead chalcogenide heterostructures, Funding Authority: NSTIP, Budget: 1984,200 SAR. 1) March 2016- March 2018, Project No. NSTIP, 15-ENE4617-04, **Role: Co-I**.
- April 2018-April 2021, Impact of Porous Structure on Solar Thermal Energy Storage Materials, PI, H. Zahir, Co-I: M. Maslehuddin, Amir Al-Ahmed, M. M. Rahman, DSR/ IN171036, Funding Authority: DSR, KFUPM, Budget: 300,000.00 SAR. **Role: PM**
- April 2020- March 2023, LaCO₃OH Nanoprisms: Photoluminescence and toxic NO_x reduction properties" (DF191-CoRERE-109) Funding Authority: DSR, KFUPM, PI, H. Zahir budget SR. 299,835. **Role: PM**
- April 2020- March 2023, Synthesis of hierarchical porous and hollow MgO microspheres for solar energy storage" (DF191-CoRERE-107) Funding Authority: DSR, KFUPM, PI, H. Zahir, Budget SR. 279,940. **Role: PM**
- April 2019- April 2022, Novel (Co-, Ni)-calixarenes as Dispersed Catalysts for Heavy oil Upgrading, Mohammad Mozahar Hossain; Co-I: Dr. Hasan Zahir, Dr. Shaikh Abdur Razzak; Dr. Sagir Adamu, DF181018; 3 Years, Funding Authority: DSR, KFUPM. Budget: 299,910.00 SAR. **Role- Co-I**

Research Summary

- Publications: 81
- Citation: 1850
- H-Index
- 34
- Book Chapter 3

Award and Recognitions

- Monbukagakusho (Ministry of Education and Culture) Scholarship, from Japan Govt. 1990-1995
- NEDO (New Energy and Industrial Technology Development Organization) fellowship, from Japan, 2000-2006
- KACARE fellowship- from King Abdullah City for Atomic & Renewable Energy, Saudi Arabia-2019
- Almarai Prize for the best Research Unit (Renewable Energy Center, KFUPM) in Saudi Arabia, 2019

Skills and Expertise

- Data Analysis, Spectroscopy, Microscopy, Evaluation, Characterization of Advanced Materials.
- Data collection including emissions projections, mitigation strategies, technology and demand changes, with a focus on energy system and industrial transformation and their contribution to climate mitigation.
- Research experience in techniques e.g. XRD, FTIR, XPS, Pore-size distribution, UV-Vis, ICP, Thermal conductivity, SEM, TEM, TGA, and DSC
- Writing of reports, work papers, briefings and other information material