ME Seminar

Unveiling the Complexity of Bimolecular Reactions

Dr. Binod Raj Giri, Brandenburg University of Technology, Germany

ABSTRACT

This talk will explore the fascinating and intricate world of complex-forming bimolecular reactions. Emphasis will be placed on how detailed theoretical insights enhance our understanding of these processes, particularly under extreme temperature and pressure conditions. Such insights are crucial for improving combustion models and atmospheric simulations. To illustrate these concepts, the talk will present several key examples of complex bimolecular reactions, highlighting their significance in real-world applications.

ABOUT THE SPEAKER

Dr. Binod Giri earned his master's degree with distinction (Gold Medalist) in physical chemistry from Tribhuvan University, Nepal, in 1997. He then served as an assistant professor there before moving to Germany in 2000 as a DAAD scholar. At the University of Karlsruhe (now KIT), he completed his Ph.D. in 2005 under the guidance of Prof. Dr. Horst Hippler, focusing on the reaction kinetics of combustion-related hydrocarbon radicals. After his Ph.D., Dr. Giri joined Argonne National Laboratory, USA, as a postdoctoral researcher with Dr. Robert Tranter, developing methods to study high-temperature combustion chemistry. Between 2007 and 2014, he held various assistant professorships at Canadian universities and was a visiting professor at Acadia University, where he researched atmospheric gas-phase reactions and taught chemistry. At the University of Calgary, he taught chemistry and collaborated on industrial research projects on the thermophysical properties of sour gases. From 2014 to 2023, he served as a senior research scientist at King Abdullah University of Science and Technology (KAUST) in Saudi Arabia, applying experimental and theoretical methods to combustion research while supervising Ph.D. students. Since 2024, Dr. Giri has been a senior academic staff member at Brandenburg University of Technology, Germany, focusing on the combustion behavior of zero-carbon and carbon-neutral fuels to address global warming.

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