

Chemistry Seminar

The **Department of Chemistry, IIT Bhilai**, is proud to host **Dr. Venkata Krishnan**, Associate Professor (Chemistry), School of Basic Sciences, Indian Institute of Technology Mandi on January 08, 2021 at 15:00 hrs for a seminar on **“Rational Design and Development of Nanostructured Heterogeneous Catalysts for Energy and Environmental Applications”**.

The abstract of the seminar is: Energy crisis and environmental deterioration has emerged as a major problem around the world in recent times, mainly due to combustion of fossil fuels and their depletion. The utilization of solar energy for the production of chemical fuels is an attractive and major strategy to address the global energy crisis and other environmental issues. The design and development of highly efficient, eco-benign and cost effective photocatalysts, which can utilize the naturally abundant solar light, is highly desired for energy generation through water splitting and environmental remediation through the degradation of pollutants. Our research group has recently developed several two dimensional carbon (reduced graphene oxide and graphitic carbon nitride) supported nanostructured photocatalysts based on semiconductors, plasmonic materials, perovskite structures and up conversion nanoparticles, which can utilize the full solar spectrum from ultraviolet to infrared regions for energy generation and environmental remediation applications. In addition, our group has also developed efficient Green catalysts for organic transformation reactions to synthesize medicinally relevant indole alkaloids in water. Furthermore, our group has also worked on the development of bioinspired scaffolds for heterogeneous catalysis and also on the development of carbon-based catalysts for biomass conversion. The highlights of the ongoing research work of our group will be presented.

About the speaker: Dr. Venkata Krishnan completed his Ph.D. in Physical Chemistry in 2006 at the University of Stuttgart, Germany. Subsequently, he worked as a postdoctoral researcher at the University of Pennsylvania, U.S.A. from 2006 to 2010 and then as a research associate at the National Institute for Materials Science (NIMS), Japan from 2010 to 2012. He joined as a faculty at the Indian Institute of Technology (IIT) Mandi in April 2012. His research group is mainly working in the field of heterogeneous catalysis for energy and environmental applications. He has successfully guided 4 Ph.D. and 8 M.Sc. students and is currently guiding 8 Ph.D. and 7 M.Sc. students, in addition to several short-term research interns. He has published more than 80 research articles in well reputed international journals and is also a reviewer for several scientific journals. He has been bestowed with several awards, including DST INSPIRE faculty award, IIT Mandi foundation day award for excellence in teaching, MANA research fellowship, DoE postdoctoral fellowship, DFG doctoral fellowship, DAAD visiting scholar fellowship, etc. In addition to teaching and research, he has also served founding head of Advanced Materials Research Center (AMRC), Associate Dean Research, etc. Currently, he is serving as the Dean of Sponsored Research, Industrial Consultancy and International Relations at IIT Mandi.

