



Indo-French Seminar on Catalysis for Sustainability

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Apparao (Appu) studied at the University of Hyderabad (India), where he completed his master thesis under the supervision of Prof. Tushar Jana. Appu then moved to University of Groningen (The Netherlands) for PhD degree (2009-13), worked in the groups of Prof. Wesley R. Browne and Prof. Bernard L. Feringa. His work mainly focused on the electro- and photochemical properties of inorganic metal complexes relevant to biological systems. He moved to University of Minnesota (United States) to work with Prof. Lawrence Que, Jr. on bio-mimetic iron complexes. Currently, he is working at IIT Kanpur as an assistant professor.

Many of the challenging chemical transformations indispensable for chemical industries can often be carried out by nature under ambient conditions with remarkable reactivity and selectivity. Developing artificial metalloenzymes to catalyze abiological reactions has been a major endeavor for many years, but most of the times the observed rate of the synthetic mimics is lower than those of metalloenzymes, making them unsuitable for practical applications. A critical step to advance the field is to fundamentally understand what it takes to not only support the high valent metal species but also modulate the reactivities of those artificial synthetic mimics. Appu's biomimetic group strives to imitate high valent metal species found in the biological systems through spectroscopic characterization, to get a mechanistic understanding of the crucial processes.