



INSTITUTE SEMINAR

19TH JANUARY, 2018 | 04:00PM | ROOM 214



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TITLE

Mimicking Transition Metals: Lesson from Other Discipline

ABSTRACT

Today's major concerns on the industrially used catalytic systems have been: i) high expense of catalysts; ii) toxicity of transition metals; iii) difficulties in removal of trace amounts of toxic-metal residues from desired product; and finally iv) the large consumption of heavier and rare transition metals which do not meet the requirement of sustainable development. In this regard, the development of environmentally benign cost-effective catalysts is ideal. Naturally, the most recent trend in catalyst development heralded a new era using either earth-abundant, nontoxic, and inexpensive metals or metal-free catalysis.

This talk will discuss our recent developments in this concept[1-6] on how systematically one can mimic the transition metal based catalysis avoiding any transition metals. The emphasis will be given on how we came up with the development of a new concept in catalysis, which was primarily triggered by an entirely different discipline of material science and spin electronics.[5, 7]

REFERENCES

- [1] A. Mukherjee *et al.* *Angew. Chem. Int. Ed.* **2011**, *50*, 3968-3972
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- [3] A. Paryar *et al.* *J. Am. Chem. Soc.* **2015**, *137*, 5955-5960.
- [4] S. Raha Roy *et al.* *ACS Catalysis* **2014**, *4*, 4307-4319
- [5] A. Mukherjee *et al.* *Acc. Chem. Res.* **2017**, *50*, 1679-1691
- [6] J. Ahmed *et al.* *Chemical Science* **2017**, *8*, 7798-7806
- [7] K. Raman *et al.* *Nature* **2013**, *493*, 509-513.

