

Seminar

Iridium-Catalysed Enantioselective C–H Allylation and Allenylation

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Transition metal-catalysed asymmetric allylic substitution (AAS) is an extremely powerful and versatile method for the synthesis of enantioenriched compounds. As opposed to Pd-catalysis, Ir-catalysed AAS reactions enable the synthesis of branched products from unsymmetrical allylic electrophiles. This feature of Ir-catalysed AAS allows for the use of non-prochiral carbon and heteroatom nucleophiles in reactions with unsymmetrical allylic electrophiles. Consequently, a wide range of nucleophiles have been employed during the past two decades. Despite these remarkable advancements, the full scope of nucleophiles in Ir-catalysed AAS reactions is yet to be explored. In addition, Ir-catalysed allenyl substitution reactions have also made tremendous progress in the past few years.

Our group is particularly interested in unexplored classes of carbon nucleophiles, with a special emphasis on C–H allylation and allenylation. To this end, we have developed catalytic enantioselective allylic and allenyl substitutions with vinyl azides as an amide enolate surrogate. We have also developed the first enantioselective allylation of olefinic C(sp²)–H bond under cooperative Lewis base and Ir-catalysis and the first enantioselective Friedel-Crafts allenylation. Some of these topics will be covered in this talk along with our recent works on other C(sp²)–H and C(sp)–H allenylation reactions.

Thursday, Jan 9th 2025

16:00 Hrs (Tea / Coffee 15:45 Hrs)

Auditorium, TIFRH