

Internal Seminar

C-F Bond Activation by Imidazolin-2-Imines: Experimental and theoretical study

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The breaking of carbon-fluorine bonds is one of the major challenges in chemistry, because carbon-fluorine bonds are among the most unreactive single bonds in chemistry. As a result, significant efforts have been devoted to selective activation and subsequent functionalization of C-F bonds of readily available fluoro-organic compounds. For example, C-F bond activation of electron-poor perfluoroarenes were achieved quite elegantly through low-valent transition metal complexes via oxidative addition or with low-valent main group compounds.¹ Non-metal-mediated C-F bond cleavage is, however, considerably less studied and there are only few examples for the activation of fluoroarenes.

Imidazoline-2-imines are a class of compounds, which have been extensively employed for the isolation of various low-valent metal complexes as well as small molecule activation. Herein, I will discuss in detail some of recent work on the activation of C-F bond using non-metallic imidazoline-2-imines. In addition, a brief summary of our ongoing work on the construction of low coordinated lanthanide complexes as potential candidates for single ion magnets stabilized by the imidazoline-2-imines will also be presented.

Reference:

1. Amii, H.; Uneyama, K. C-F Bond Activation in Organic Synthesis, Chem. Rev., 2009, 109, 2119–2183.

Thursday, Apr 18th 2019

12:15 PM (Tea/Coffee at 12:00 PM)

Class Room-4, TIFR-H