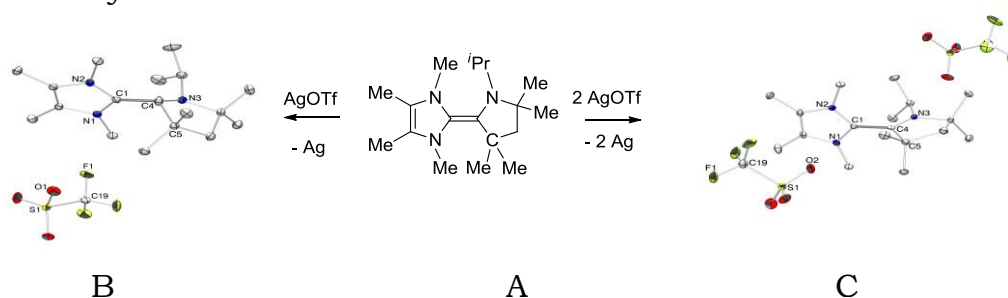


# Students' Annual Seminar

## Electron Rich Olefins and Molecular Phosphatemonoesters

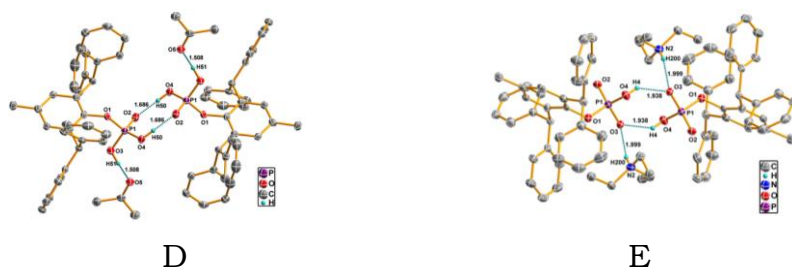
### Debdeep Mandal

Electron-rich olefins has the potential for (reversible)-electron donors as single and/or double-electron reducing agents and have found various applications such as in photovoltaic devices, redox-active ligands in organometallic chemistry, chemical sensors. In recent years electron rich olefins have been considerably used as strong electron donors in organic transformations. Here we will discuss electron rich triaza-olefins, A: having alkyl substituted N-heterocyclic carbene and cyclic alkyl amino carbene moieties (Figure 1). We were able to isolate the corresponding radical cation, B and dication, C (Figure 1); preliminary studies show that our alkenes reduce the aryldiazonium salt.



**Figure 1:** Structures of A, B, and C.

We also would like to report on phosphatemonoesters. Phosphatemonoesters are generally formed polymeric structures in the solid states through H-bonding network as it has one P=O and two P-OH moieties. Here we would like to disclose our strategy for molecular neutral and anionic phosphatemonoesters which exist as a dimer in the solid state like carboxylic acids, phosphate diesters, or phosphinic acids (Figure 2).



**Figure 2:** Solid state molecular structure of neutral phosphatemonoester (D) and anionic phosphatemonoester (E).

**Tuesday, Apr 25<sup>th</sup> 2017**

**4:00 PM (Tea/Coffee at 3:45 PM)**

**Seminar Hall, TCIS**