Tata Institute of Fundamental Research
Survey No. 36/P, Gopanpally Village, Serilingampally, Ranga Reddy Dist., Hyderabad – 500 046

Seminar

Taming Alkyl Boronic Esters in Cross-Couplings via Amino Radical Transfer (ART)

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Metal-catalysed cross-couplings of aryl boron reagents, exemplified by the Suzuki–Miyaura[1] and Chan–Lam[2] reactions, are indispensable in organic synthesis. In contrast, analogous couplings with alkyl boronic pinacol esters (Bpins)[3,4,5] are hindered by β-hydride elimination, isomerization, and protodeborylation. In this talk, I will present the amino radical transfer (ART) strategy, which converts alkyl Bpins into alkyl radicals, enabling metal-catalysed couplings with amines[6], alkenes[7], and heteroarenes[8] to access medicinally relevant scaffolds.

References:

[1] Miyaura, N.; Suzuki, A. *Chem. Rev.* **1995**, 95, 2457–2483.
[2] West, M. J.; Fyfe, J. W. B.; Vantourout, J. C.; Watson, A. J. B. *Chem. Rev.* **2019**, 119, 12491−12523.
[3] Bera, S.; Hu, X. *Angew. Chem. Int. Ed.* **2019**, 58, 13854–13859.
[4] Bera, S.; Mao, R.; Hu, X. *Nat. Chem.* **2021**, 13, 270–277.
[5] Bera, S. Fan, C., Hu, X. *Nat. Catal.* **2022**, 05, 1180–1187.
[6] S. Shil, S.; Patra, B. P.; Begam, T.; Bera, S. J. *Am. Chem. Soc.* **2025**, 147, 26486–26495.
[7] Begam, T.; Behera, P. K.; Bera, S. (*under review*).
[8] Patra, B. P.; Behera, P. K.; Shil, S.; Bera, (*under review*).

Friday, Sep 12th 2025

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

Seminar Hall, TIFRH