

Internal Seminar

Structural Insights into the Stabilisation of α -FAPbI₃ Perovskites Using Additives for Enhanced Solar Cell Performance

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Chemical doping of inorganic–organic hybrid perovskites is a powerful strategy to improve the performance and stability of perovskite solar cells (PSCs). In this work, I explore a range of additives developed in our lab to chemically stabilise the α -FAPbI₃ perovskite structure. Using solid-state (SSNMR) spectroscopy, we investigate the atomic-level interactions between these additives and the perovskite lattice, providing structural insights into the stabilisation process. Our findings show that incorporating these additives during perovskite deposition results in highly crystalline films with larger grains and improved charge-carrier lifetimes. Consequently, the optimised devices exhibit significantly enhanced solar cell performance, achieving a good power conversion efficiency (PCE) and remarkable long term stability.

Friday, Mar 7th 2025

16:00 Hrs

Seminar Hall, TIFRH