

MONDAY

COLLOQUIUM

Emulating strong correlation and dynamics
in ultracold atom platform

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13 Apr 2026 (Monday) | 16:00 Hrs (Tea / Coffee 15:45 Hrs) | Venue: TIFRH Auditorium

In this talk, we provide a pedagogical introduction to ultracold atoms in optical lattices as platforms for emulators of strongly correlated quantum models. We shall discuss emulation of three models in this context; these are the Bose Hubbard model, the tilted Bose Hubbard model, and chains and arrays of Rydberg atoms. In each case, we discuss the key factors that lead to strong correlation. We shall also discuss how these systems are perfect experimental platforms for studying coherent quantum dynamics of many-body models with focus on Rydberg atom chains which are known to host quantum scars, a special class of many-body eigenstates that evade eigenstate thermalisation hypothesis.