



**Conference on Long-Range Interacting Many-Body Systems:
from Atomic to Astrophysical Scales
(25 - 29 July 2016)**

Venue: ICTP Leonardo da Vinci Building - Budinich Lecture Hall
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Title:

Correlated dynamics in strongly-interacting quantum systems

Speaker:

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Ultracold atoms in optical lattices provide an exquisite platform to investigate strongly correlated quantum many-body systems far from equilibrium. I will present experiments in the context of Hubbard systems as well as strongly interacting bosons confined to one-dimensional geometry. Specifically, we report on Floquet engineered correlated tunneling in the Bose-Hubbard model via rapidly driven particle interactions. Furthermore, we investigate the dynamics of a single impurity immersed in a Tonks-Girardeau gas and subject to an external force and observe intriguing Bloch-oscillation type motion induced by the correlated background gas. If time allows, I will present the current status of our endeavor towards the preparation of high-density samples of long-range interacting RbCs ground-state dimers.