



**LENS-QSTAR Seminar**  
**April 4, 2014 at 16:00, Lens, Aula Querzoli**

**Marco Moratti**  
*QSTAR*

*Anderson Self-Localization with Two Ultracold Atomic Species*

We study Anderson localization of a non-interacting ultracold atomic gas into a disordered potential created -- via dynamical instability -- by a second species.

We go beyond the proposal of Gavish and Castin by showing the possibility to create an uncorrelated atomic disorder with controllable statistical properties. We relate the disorder properties to the effective (positive or negative) temperature of the system.

We finally study how disorder fluctuations break Anderson localization and allow finite transport (from subdiffusion to ballistic expansion) in the system

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