

## Many body localization without quenched disorder?

*mardi 14 juin 2016 15:15 (45 minutes)*

I explore the possibility that translationally invariant quantum many body systems may undergo a transition to a localized phase where ergodicity and translational invariance break down spontaneously. This phenomenon could be regarded as an interaction-induced many-body localization on configurational (self-generated) disorder.

I will argue that such quantum glasses are indeed stable to perturbative quantum fluctuations at low enough orders. I will then discuss caveats due to high orders in perturbation theory which appear strongly suppressed but cannot be controlled. Those have interesting implications on the possible phase diagrams of systems with or without quenched disorder, as well as on the possibility of many-body mobility edges as a function of energy.

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**Classification de Session:** Afternoon Session1