An introduction to many-body localization in condensed matter physics

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The first aim of this seminar is to give a simple and general introduction to the so-called Many-Body Localization (MBL) phenomenon which occurs in a large class of disordered and interacting quantum systems. Then, I will focus on recent results obtained for specific random spin models: the multifractal properties across the MBL transition [1], and a newly discovered chain breaking process [2] which characterises the localized regime, and is at the origin of Kosterlitz-Thouless mechanism for the MBL transition.