



DAVID A. SMITH 'Relaxation Dynamics and Prethermalization in a Many-Body Quantum System'

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November 11, 2011

Seminar, November 11, 2011, 12:00. Seminar Room

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Questions of relaxation processes in quantum many-body systems arise in many areas of physics ranging from cosmology to high-energy physics to condensed matter. These problems remain a challenge despite considerable theoretical and experimental efforts, and their difficulty is exacerbated by the scarcity of experimental tools for characterizing complex transient states.

An experimental study of the relaxation dynamics of a coherently split one-dimensional Bose gas will be presented. Through measurements of full quantum mechanical probability distributions of matter-wave interference patterns, unprecedented information about the

dynamical states of the system can be extracted. The evolution of this non-equilibrium system will be discussed in the context of thermalization, showing that the evolution of such many-body quantum systems is a far richer process than has been naively assumed in the past.

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Hosted by Prof. Maciej Lewenstein