

SEMPARIS – Séminaires en région parisienne

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Seminaire exceptionnel

Jeudi 19 Septembre 2013, 11 :00

LP THE, Bibliotheque

Domaines : cond-mat.stat-mech

Titre : *Irreversible work, large deviations, critical Casimir effect, and universality in quantum quenches*

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Résumé : *Recent experimental progresses in the physics of ultracold atomic gases have revived the interest in the behavior of thermally isolated quantum statistical systems, especially after sudden changes (quenches) of their control parameters. Considering the quench as a thermodynamic transformation, we focus on the probability distribution of the irreversible work done on the system. Large deviations, i.e., rare fluctuations of this intensive work are unexpectedly connected to the physics of a classical system confined in a film geometry. If the quench occurs close to a (quantum) critical point, the large deviations acquire universal features dictated by the critical Casimir effect in the corresponding classical system. The statistics of the work in bosonic systems may additionally display a transition which is analogous to the equilibrium Bose-Einstein condensation.*
