



Dr. Dragi Karevski

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“Critical quench dynamics in confined systems”

We study the loading/deloading in time of a confining potential in a quantum critical system, such as the loading of an optical trap on ultracold atoms. The loading of the confining potential, driving the system across its critical point, generates topological defects due to the break-down of adiabaticity close to the critical point. Using a generalized Kibble-Zurek argument we develop a scaling theory which predicts for the density of defects a power law behavior with the ramping rate with an exponent depending on the space-time properties of the potential. The scaling theory is supported by first order adiabatic calculation and exact results on an inhomogeneous transverse field Ising chain where the full time-evolution of the density of defects is derived.

Dienstag, 10. November 2009, 14.00 c.t.

Gebäude E2 6, Seminarraum E.04

Alle Interessenten sind herzlich eingeladen.

Die Sprecher des Graduiertenkollegs
Manfred Lücke und Ludger Santen

**Strukturbildung und Transport
in komplexen Systemen**