

Gemeinsame Veranstaltung von
Humboldt-Universität zu Berlin, Institut für Physik
(Theorie der Elementarteilchen / Computerorientierte Theoretische Physik)
DESY, Zeuthen

SEMINAR

**Feldtheorie auf dem Gitter und
Phänomenologie der Elementarteilchen**

Am Dienstag, dem **4. Dezember**, um **15:00 Uhr s.t.** spricht

Prof. H. W. Diehl

Universität Duisburg-Essen

zum Thema

Casimir effect in interacting Euclidean field theories

Abstract

The nearly critical fluctuations that occur in condensed matter systems close to a critical point induce long-range effective forces between confining boundaries. These effective forces are analogous to the Casimir forces in QED — they are universal, depending on gross features of the fluctuating medium and of the boundaries. Unlike in QED, these Casimir forces cannot normally be described by non-interacting field theories but involve interacting field theories in bounded geometries. The state of the art of the theory and its application to recent experiments and simulations is discussed. It is shown that previous approaches based on renormalized field theory require revision for those boundary conditions that involve zero modes at the bulk critical point in Landau theory. Recent results beyond two-loop order of an appropriately reformulated field theory are presented.

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(Lageplan: http://linde.physik.hu-berlin.de/images/lageplan_neu.gif)

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