

Abstract (group of H.W. Diehl, Universität Duisburg-Essen)

We are interested in the study of fluctuation-induced forces in condensed matter systems. We have expertise in the application of renormalization group techniques to the study of critical behavior in systems in bounded geometries. In recent years a great deal of our activities has been focused on the investigation of fluctuation-induced forces near critical and multicritical points ("thermodynamic Casimir effect"). We are also interested in the study of finite-size effects on static and dynamic critical phenomena in restricted geometries. These problems usually involve the study of interacting field theories in bounded geometries. In the future, we plan to study analogous phenomena in nonequilibrium systems.