

Isolated quantum systems in extreme conditions

Prof. Dr. Jürgen Berges

Institut für Theoretische Physik, Universität Heidelberg

Isolated quantum systems in extreme conditions can exhibit characteristic common properties despite dramatic differences in key parameters such as temperature, density, field strength and others. The existence of universal regimes, where even quantitative agreements between seemingly disparate physical systems can be observed, drives a remarkable convergence of research activities across traditional lines of specialisation. I will describe the concerted research effort led by the recently established Heidelberg Collaborative Research Centre ISOQUANT and present specific examples from high-energy particle physics and ultracold quantum gases.