SFB/TRR 21 - Colloquium

9. Januar 2015, Ulm

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(TU Darmstadt & EMMI)

Cold Atoms meet Quantum Field Theory

Ultracold atoms have gained prominence in many subfields of physics in recent years. In particular, they have led to new insights into the physics of strongly interacting quantum systems in general. This has led to the introduction of new theoretical methods such as quantum field theory. A unique aspect of ultracold atoms is the tunability of their interactions. In the unitary limit of infinite scattering length, the interactions do not provide a length scale. The quantum field theory describing such a system is invariant under scale and conformal transformations. I will give an introduction to this theory and discuss some applications in ultracold atoms and other fields.

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