

Thomas Busch
(Okinawa Institute of Science and Technology Graduate
University)

Engineering of Quantum Systems by Controlling Interactions

Interactions between atoms often introduce large amounts of complexity into many-particle systems, but they can also lead to new and interesting physical regimes. In this presentation I will discuss two examples of interacting ultra cold atomic systems, where above a certain interaction strength unexpected effects appear.

The first example describes our efforts towards full set of techniques to control interacting two-particle systems and in the second an increased interaction in a multicomponent BEC system is shown to lead to emergence of classical behaviour in a fully quantum mechanical system.



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