



Jens Eisert
(FU Berlin)

Dynamical analogue quantum simulators

Complex quantum systems out of equilibrium are at the basis of a number of long-standing questions in physics. This talk will be concerned on the one hand with recent progress on understanding how quantum many-body systems out of equilibrium eventually come to rest, thermalise and cross phase transitions, on the other hand with dynamical analogue quantum simulations using cold atoms [1-4]. In an outlook, we will discuss the question of certification of quantum simulators, and will how this problem also arises in other related settings, such as in Boson samplers [5,6].

[1] S. Braun, M. Friesdorf, S. S. Hodgman, M. Schreiber, J. P. Ronzheimer, A. Riera, M. del Rey, I. Bloch, J. Eisert, U. Schneider, arXiv:1403.7199. [2] M. Kliesch, M. Kastoryano, C. Gogolin, A. Riera, J. Eisert, arXiv:1309.0816. [3] S. Trotzky, Y.-A. Chen, A. Flesch, I. P. McCulloch, U. Schollwoeck, J. Eisert, I. Bloch, Nature Physics 8, 325 (2012). [4] A. Riera, C. Gogolin, M. Kliesch, J. Eisert, in preparation (2014). [5] C. Gogolin, M. Kliesch, L. Aolita, J. Eisert, in preparation (2014) and arXiv:1306.3995. [6] S. Aaronson, A. Arkhipov, arXiv:1309.7460.

11. April 2014, 14:00 Uhr

**Universität Ulm, Raum N25/H8
Albert-Einstein-Allee 11, 89081 Ulm**

