

Stuttgarter Physikalisches Kolloquium

Fachbereich Physik, Universität Stuttgart
Max-Planck-Institut für Festkörperforschung
Max-Planck-Institut für Intelligente Systeme

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Universität Stuttgart, Pfaffenwaldring 57, 70569 Stuttgart-Vaihingen

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Is physics timeless?

Jan Michael Rost

MPI for the Physics of Complex Systems Dresden

Abstract

To unify different concepts used in the mathematical description of nature has been a lasting motivation to evolve theory in physics. Here, we argue that time and temperature originate from a stationary global entangled state of a system and its environment. Time evolution emerges in the relation of system and environment when separating them. Imaginary relational time gives rise to temperature and the canonical ensemble for the system, if the global state is maximally entangled.