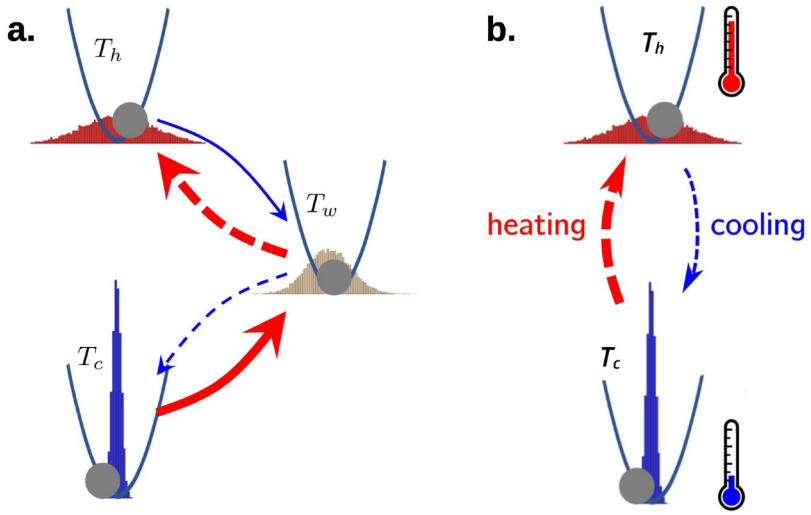
Physikalisches Institut
Fakultät für Mathematik und Physik
Albert-Ludwigs-Universität Freiburg

PHYSIKALISCHES KOLLOQUIUM

AM 22. APRIL 2024 UM 17 UHR C.T.
IM GROßEN HÖRSAAL



THERMAL RELAXATION ASYMMETRY: WHEN AND WHY HEATING IS FASTER THAN COOLING

ALJAZ GODEC
MPI GÖTTINGEN

According to conventional wisdom, a macroscopic system placed in an environment with a different temperature relaxes (i.e., warms up or cools down) to the temperature of the surroundings. This relaxation is mediated by the flow of heat that is set only by the temperature difference. However, when rapid changes in temperature push a system far from thermodynamic equilibrium, thermal relaxation becomes asymmetric, which was predicted theoretically [1,2] and recently confirmed experimentally [3]. That is, under quite general conditions, heating is in fact faster than cooling. I will introduce and explain this curious relaxation asymmetry in reversible as well as driven, detailed-balance violating systems, highlighting that noisy systems generally do not relax by passing quasi-statically through local thermodynamic equilibria.