

Quantum thermodynamics under control

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I will review some fundamental modifications that occur in the dynamics and states of quantum systems interacting with thermal baths as a result of the application of fast dynamical control to the systems. This control has qualitatively similar consequences regardless of the form of control, be it quantum measurements or phase - amplitude modulations. In particular, such control may strongly boost power or refrigeration production by cyclic devices. Quantum coherence (entanglement) in multipartite systems may further boost power or cooling in such devices. Yet the traditional principles of thermodynamics are unshaken.