

# **Thermodynamic-inspired control of complex quantum systems**

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The operation of near-term quantum technologies requires the development of feasible, implementable, and robust strategies of controlling complex many body systems. However, many existing control techniques are energetically or computationally expensive, which makes their practical implementation often undesirable. In this talk, I will outline a few recent results relying on approximation strategies, which take inspiration from thermodynamics and utilize the corresponding perturbation theories. As specific examples, we will discuss optimal annealing protocols in quantum computers, the welding of two nano-wires, and the emergence of X-states in impurity models.