

Condensed Matter Seminar

Professor Sebastian Deffner

(University of Maryland)

**“Quantum thermodynamics: An introduction to the
thermodynamics of quantum computers”**

Monday, April 29, 2019

4:00pm—5:00pm

304 Robeson Hall

We are the verge of a technological revolution. Over the last couple of years the first computational devices have become commercially available that promise to exploit so-called quantum supremacy. Even though the thermodynamic cost for processing classical information has been known since the 1960s, the thermodynamic description of quantum computers is still at its infancy. This is due to the fact that many notions of classical thermodynamics, such as work, do not readily generalize to quantum systems in the presence of thermal and quantum noise. In this colloquium, we will outline a novel conceptual framework of an emerging theory, Quantum Thermodynamics, and its application to quantum computers.



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