中央大學物理學系

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# Non-equilibrium statistical mechanics of energy coupling at the molecular scale


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**Venue:** **S4-623**

**Time:** **11:00-12:00**


Abstract:

Motion at the molecular scale is often governed by overdamped Brownian motion on a free-energy potential landscape. In this talk we survey the use of this framework to describe the non-equilibrium energy conversion behavior of artificial and biological molecular scale devices (often called molecular or protein motors). Combining the Brownian framework with Shannon entropy, it is possible to develop a thermodynamically-consistent description of energy conversion between chemical and mechanical degrees of freedom (as occurs in biological proteins) and of microscopic heat engine concepts, such as, the Feynman ratchet. We also explore the application of the thermodynamic uncertainty relation to molecular-scale energy coupling.