

Séminaire général de l'IPhT

Mardi 8 juin 11h00

Orme des Merisiers Salle Claude Itzykson, Bât. 774
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Energetics at mesoscopic scales

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In our time when single molecules are observable in real time, the description of fluctuations, such as Langevin equations, needs to be enriched by the energetics point of view. The ingredients of thermodynamics, i.e. heat, work and energy, should now be interpreted and measured during a single realization of stochastic process.

In the talk, after recalling the basics of stochastic descriptions, we introduce the energetics at mesoscopic scales. As applications, we explain several historical misconceptions such as in the Feynman's ratchet wheel and pawl, and also some intrinsically non-equilibrium processes, such as the one hidden in the ideal Carnot cycle. We argue the importance of scale consciousness of the heat and its observation.

Interests in single protein machineries might be also referred to.

Ref.: Stochastic Energetics (LNP 799, Springer, 2010)
