

## Special Issue

# Fluctuation Relations and Nonequilibrium Thermodynamics in Classical and Quantum Systems

### Message from the Guest Editor

The recent advances in the control of microscopic systems down to the atomic level have triggered a renewed interest in the study of the thermodynamic processes of small systems. As these are characterised by strong fluctuations of thermal and quantum origins, thermodynamic quantities like heat, work, and entropy become stochastic variables. Fluctuation theorems, including the most celebrated Jarzynski relation, connect exponential averages of these quantities, even for out-of-equilibrium processes, with equilibrium observables like free energy differences. The areas covered in this Special Issue include but are not restricted to: \*) Fluctuation relations in classical stochastic thermodynamics \*) Definitions of work, heat, and entropy and related fluctuation theorems in quantum systems \*) Quantum engines and refrigerators \*) Resource theory of quantum thermodynamics \*) Role of quantum correlations and coherence in quantum thermodynamics

### Guest Editor

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### Deadline for manuscript submissions

closed (31 December 2019)



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### Message from the Editor-in-Chief

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