



国立研究開発法人理化学研究所 仁科加速器研究センター
第224回 RIBF核物理セミナー
RIKEN Nishina Center for Accelerator Based Science
The 224th RIBF Nuclear Physics Seminar

Thermodynamic entropy as a Noether invariant

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We study a classical many-particle system with an external control represented by a time-dependent extensive parameter in a Lagrangian. We show that thermodynamic entropy of the system is uniquely characterized as the Noether invariant associated with a symmetry for an infinitesimal non-uniform time translation $t \rightarrow t + \epsilon \hbar \beta$, where ϵ is a small parameter, \hbar is the Planck constant, β is the inverse temperature that depends on the energy and control parameter, and trajectories in the phase space are restricted to those consistent with quasi-static processes in thermodynamics.

[S.Sasa and Y.Yokokura, Phys. Rev. Lett. 116, 140601 (2016)]

* The talk will be given in English language..

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Oct. 4th (Tues.) 2016 13:30~
RIBF Hall (rm.201), RIBF bldg., RIKEN