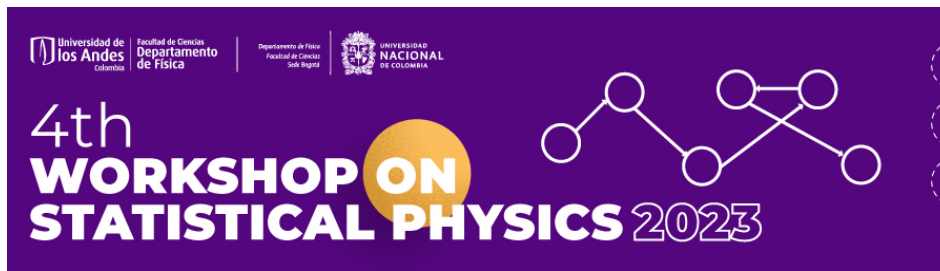


4th Workshop on Statistical Physics



Contribution ID: 49

Tipo: **Tutorial courses**

Control theory and stochastic thermodynamics

lunes, 2 de octubre de 2023 14:00 (1h 30m)

Control theory is an important topic for physicists that rarely is covered by standard curricula. In these three sessions, I will introduce the main ideas and discuss basic ideas such as feedback, feedforward, and robustness and how they apply to stochastic thermodynamics.

- Session 1 will introduce control theory as a whole and motivate its interest and value to physicists, both for practical reasons (e.g. improving experiments, e.g. via PID feedback) and theoretical reasons (e.g. its connections with information theory and thermodynamics).
- Session 2 will focus on optimal control, including Hamiltonian methods and Pontryagin's principle, and discuss its application to stochastic systems.
- Session 3 will focus on state estimation, including Bayesian and Kalman filters, and show that many practical problems in the treatment of experiment have in common the need to infer "hidden" dynamical states from a sequence of measurements.

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Session Classification: Tutorial courses

Track Classification: Statistical Physics