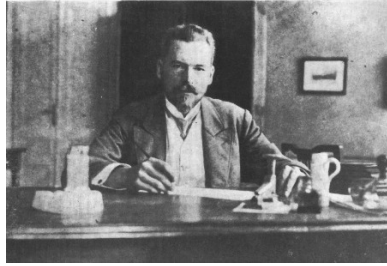


36th M. Smoluchowski Symposium on Statistical Physics: Soft Matter, Information Processing and Nonequilibrium Fluctuations



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Type: **Invited Talk**

Thermal relaxation asymmetry in reversible and driven systems

Tuesday, 26 September 2023 14:00 (40 minutes)

According to conventional wisdom, a macroscopic system placed in an environment with a different temperature relaxes to the temperature of the surroundings, mediated by the flow of heat that is set only by the instantaneous temperature difference. However, when rapid changes in temperature push a system far from thermodynamic equilibrium, thermal relaxation becomes asymmetric. That is, under quite general conditions heating is in fact faster than cooling. In the talk I will introduce and explain the relaxation asymmetry in reversible as well as detailed-balance violating systems, thereby highlighting that noisy systems do not relax by passing through local equilibria.

References

- [1] A. Lapolla & AG, *Phys. Rev. Lett.* **125**, 110602 (2020)
- [2] M. Ibáñez, C. Dieball, A. Lasanta, AG, & R.A. Rica, *arXiv:2302.09061* (2023)
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