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PD Dr. Stefan Flörchinger

ITP (Uni Heidelberg)

“Thermodynamics from relative entropy“

03 July 2020 1:30 PM

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ABSTRACT

Thermodynamics is usually developed starting from entropy and the maximum entropy principle. We investigate here to what extent one can replace entropy with relative entropy which has several advantages, for example in the context of local quantum field theory. We find that the principle of maximum entropy can be replaced by a principle of minimum expected relative entropy based on information geometry.
We also discuss how thermodynamic fluctuations are governed by relative entropy. Finally, an outlook towards fluid dynamics in the context of quantum field theory is formulated.

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