

## Relative entropy and effective field theory

*Thursday, 22 August 2024 10:00 (30 minutes)*

Relative entropy quantifies the difference between two probability distribution functions, which is connected with key properties of physics, such as the second law of thermodynamics. In this talk, one of the most attractive features of relative entropy, non-negativity, is briefly reviewed. Then, I consider the relative entropy between two theories with and without interaction between heavy and light degrees of freedom. I explain connections between the non-negativity of the relative entropy and various phenomena, e.g., the positive magnetic susceptibility in the Ising model, the positivity bounds on the SMEFT  $SU(N)$  gauge bosonic operators, etc.

**Primary author:** UEDA, Daiki

**Presenter:** UEDA, Daiki

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