



Special Session S2: Entropies and Correlations in Complex Systems

Over the past decades, there has been an unprecedented interest in statistical physics of complex systems that are typically non-additive, nonextensive in Boltzmann-Gibbs framework and that exhibit long-lived non-Boltzmann stationary states accessible to observations. These systems are usually characterized by long-range interactions and/or correlations, path dependence and non-exponential phase-space growth, being studied by means of information theory, non-equilibrium thermodynamics and large deviation theory, as well as by means of generalized thermostatistics which is derived from additive and non-additive generalizations of Boltzmann-Gibbs entropy.

The goal of this section is to gather researchers from statistical physics and information theory communities in order to re-examine the role of generalized entropies and generalized thermostatistics in complex system modeling, with focus on mean-field spin systems, systems with emergent structures, nonequilibrium systems, multifractals, disordered systems, chaotic systems, and complex networks. Particularly, the section aims to explore the interplay between non-additivity, non-extensivity and generalized thermostatistics and to analyze their relationships to information theory and large deviations theory.

A non-exclusive list of topics of interest includes:

- Non-additivity and non-extensivity
- Heavy-tailed and thin-tailed distributions
- Generalized entropies and information measures
- Large deviation theory and central limit theorems

All the researchers from statistical physics and information theory who have an interest in the aforementioned fields are welcome to submit their contributions to this section.

Extended deadline for abstracts submission is **April 17, 2023**. For additional information visit the Special Session webpage at: <http://sigmaphisrv.polito.it/>.

Invited speakers:

Christian Beck (QMUL, United Kingdom)
Alessandro Campa (ISS, Italy)
Bernat Corominas-Murtra (Uni Graz, Austria)
Sarah A. M. Loos (UC, United Kingdom)
Hernando Quevedo (UNAM, Mexico)

Ugur Tirnakli (IUE, Turkey)
Raul Toral (IFISC, Spain)
Constantino Tsallis (CBPF, Brazil)
Péter Ván (Wigner RCP, Hungary)
Tatsuaki Wada (Ibaraki University, Japan)

Organizers:

Velimir M. Ilić (MISANU, Serbia), Jan Korbel (CSH, Austria) and Shamik Gupta (TIFR, India)