# Special Issue

# Phase Transitions and Emergent Phenomena: How Change Emerges through Basic Probability Models

### Message from the Guest Editor

Ludwig Boltzmann and contemporaries pioneered the development of statistical physics towards the end of the 19th century. The pillars on which the discipline rests include “bottom-up” theories of phase transitions and critical phenomena, built on other pioneering ideas and work such as that of Wilhelm Lenz and Ernst Ising at the start of the 20th century. In the words of Stephen Hawking, we are now in the “century of complexity”, moving on from basic laws that govern matter to how everything is connected to everything else. This Special Issue focuses on models that are simplified at the micro level but complex at the macro level. We are interested in negative results like Ising’s as well as positive results, and, reflecting the birthplace of statistical physics, we welcome interdisciplinary considerations as well as traditional physics. Thus, this Issue focuses on the concept of change—how the simple can deliver the complex through non-trivial mechanisms, wherever they arise.

### Guest Editor

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### Deadline for manuscript submissions

closed (30 November 2020)

**Entropy**

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**CiteScore 5.2**
**Indexed in PubMed**

mdpi.com/si/23820

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## Message from the Editor-in-Chief

The concept of entropy is traditionally a quantity in physics that has to do with temperature. However, it is now clear that entropy is deeply related to information theory and the process of inference. As such, entropic techniques have found broad application in the sciences.

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