



entropy



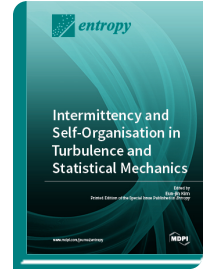
*Special Issue Reprint*

## Intermittency and Self-Organisation in Turbulence and Statistical Mechanics

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There is overwhelming evidence, from laboratory experiments, observations, and computational studies, that coherent structures can cause intermittent transport, dramatically enhancing transport. A proper description of this intermittent phenomenon, however, is extremely difficult, requiring a new non-perturbative theory, such as statistical description. Furthermore, multi-scale interactions are responsible for inevitably complex dynamics in strongly non-equilibrium systems, a proper understanding of which remains a main challenge in classical physics. As a remarkable consequence of multi-scale interaction, a quasi-equilibrium state (the so-called self-organisation) can however be maintained. This special issue aims to present different theories of statistical mechanics to understand this challenging multiscale problem in turbulence. The 14 contributions to this Special issue focus on the various aspects of intermittency, coherent structures, self-organisation, bifurcation and nonlocality. Given the ubiquity of turbulence, the contributions cover a broad range of systems covering laboratory fluids (channel flow, the Von Kármán flow), plasmas (magnetic fusion), laser cavity, wind turbine, air flow around a high-speed train, solar wind and industrial application.



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