



Turbulence and Instabilities in Fluids and Plasmas

Guest Editor:

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Message from the Guest Editor

The aim of this Special Issue is to present recent achievements in the dynamics of turbulent fluids and plasma and their interplay with instabilities. This kind of phenomenon is found in various natural contexts and in different regimes, for instance, in the Earth's magnetosphere, where the establishment of a turbulent state follows Kelvin–Helmholtz or tearing instabilities; in the solar wind plasma, where turbulent fluctuations at ion scales can generate plasma micro-instabilities and out-of-equilibrium features; or in the solar atmosphere, where new observations and theoretical modeling are revealing complex turbulent dynamics, strongly influenced by the presence of inhomogeneities in the background medium and complex magnetic topologies. These processes can strongly affect the transport of energetic particles, with repercussions on space weather predictions. They can provide clues that are useful to singling out the most relevant dissipative processes that occur in low-collisional plasmas.





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Message from the Editor-in-Chief

Continued developments in instrumentation and modeling have driven atmospheric science to become increasingly more complex with a deeper understanding of concepts, mechanisms, and interactions. This is the field that innovation built and it has led to a better appreciation for the complexity with atmosphere. Human life is intertwined in this complexity as we strive to better understand our atmosphere. Climate change is constantly stretching the limits of our thinking and forcing new ideas and concepts to be played out. Welcome to the Anthropocene!

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