Special Issue

Thermodynamic and Transport Properties of Plasmas

Message from the Guest Editors

Low-temperature plasmas are applied in different technological fields, from material processing to aerospace. A fundamental aspect in characterizing plasma is the determination of its thermodynamic and transport properties. This is relevant not only to the equilibrium but also to out-of-equilibrium regimes, especially when internal levels depart from the Maxwellian distribution, and the role of excited states needs to be investigated. Moderate, non-equilibrium conditions are modeled by the multi-temperature approach, a convenient alternative to state-to-state kinetics. It requires an accurate definition of the thermal properties of chemical species and of the characteristic temperatures to describe the internal degrees of freedom; these model parameters significantly affect rate coefficients due to the lowering of activation energy for reactive processes initiated from excited levels. This Special Issue is devoted to the discussion of these aspects and relevant open problems in the thermodynamic and transport characterization of equilibrium and non-equilibrium plasmas.

Guest Editors

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Editor-in-Chief

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