PiAI Seminar Series: Physics informed AI in Plasma Science
9:30-10:30, 31 October 2022 (CET)
17:30-18:30, 31 October 2022 (JST)
Web Seminar

Collisional and radiative molecular data for plasma models

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Abstract

The importance of plasmas, both naturally occurring and man-made, is being increasing recognised. As a result the desire to model them so as to understand, control and even design them is growing rapidly. However, the chemistry in a plasma is complex and usually involves many species which are not easily amenable to laboratory experiments. This is particular true of low-temperature plasmas which contain molecules. For example, there are essentially no measurements of electron collisions with the transient molecular species that arise in and are frequently the key ingredients of such plasmas. As a result theory is becoming a major source of collisional and other data for plasma modelling. The seminar will outline the current situation with the generation of molecular data for plasma models and how the data many assessed and accessed. A new initiative will be outlined which is providing radiative data for plasma models to allow the modelling of both radiative lifetimes of excited states and radiation effects within the plasma.