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(I) Laser Spectroscopy of Plasmas

Tuesday 20 June 2023 11:15 (30 minutes)

Within the past decade micro-plasma jets in contact with liquids have been the focus of international research. They have shown great potential in applications ranging from surface treatment to medicine. To be able to control these jets for precise application, a fundamental understanding of the underlying processes is required. For this, detailed diagnostics need to be performed, which are challenged by the plasma jet's high gradients, multiphase transport processes and interfaces of plasma and liquid or solid.
Most conventional plasma diagnostics fail in cases of non-equilibrium processes at atmospheric pressure. Ultrafast laser spectroscopy, however, permits the diagnostic of fundamental plasma properties such as reduced electric field or flow properties and gas composition at timescales much shorter than collisional processes.

The talk presents current development in the field of ultrafast laser diagnostics and the challenges that single shot measurements have.

A compromise to gain information from single shot measurements and high signal to noise from averaging measurements can be gained from data post processing or advanced averaging methods.

Presenter: REUTER, Stephan (Polytechnique Montreal)

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