

**“Tokamak disruptions from an experimental and a theoretical perspective : what we know and what we don’t know ; simulations achievements and existing gaps.”**

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Tokamak disruptions represent a serious drawback for fusion magnetic confinement systems and for the development of a fusion reactor concept.

Nuclear fusion power plants require steady state operation of quiescent plasmas and no disruptions at all are allowed. In present tokamaks, however, disruptions are almost unavoidable especially for high performances plasmas conditions.

In these lectures I will present an overview of the known, open and critical issues, both from an experimental and a theoretical perspective.

I will mainly concentrate on the magneto-hydro-dinamical (MHD) aspects only briefly mentioning the issues related to disruptions mitigation using gas injection systems.