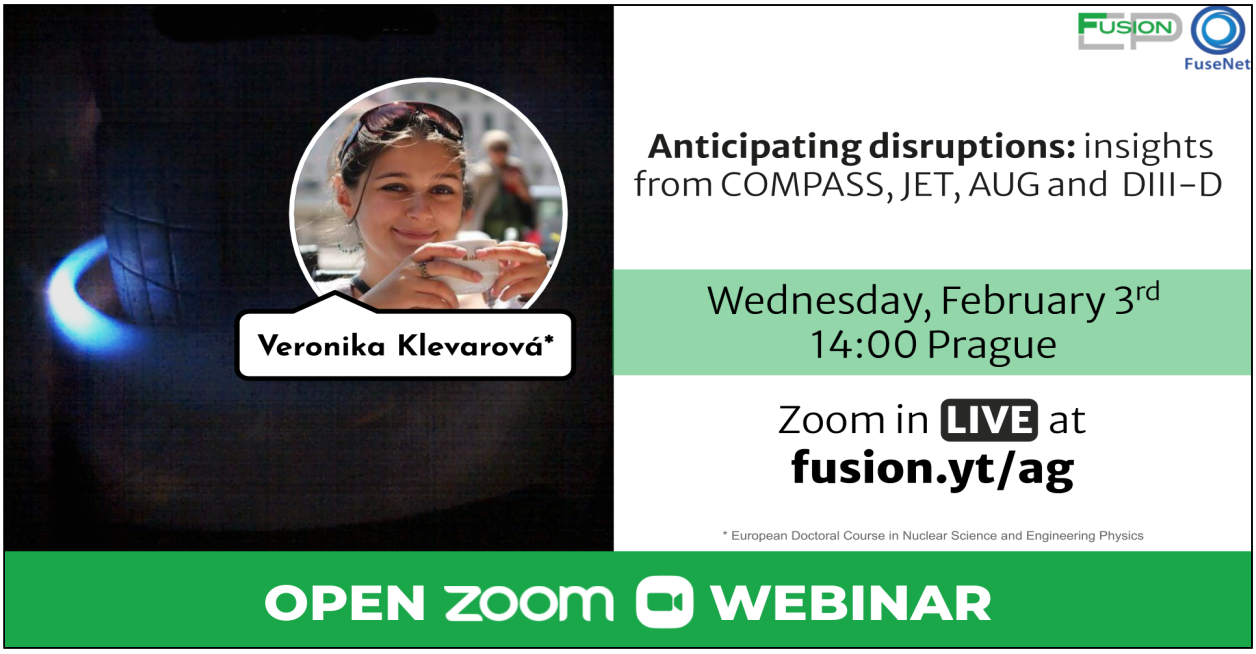
FusionEPTalks



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Title: Anticipating disruptions: insights from COMPASS, JET, AUG and DIII-D

Speaker: Veronika Klevarova

When: 2021-02-03 14:00:00

Abstract: Disruptions present a major challenge for high-performance discharges in ITER and tokamak-based power plants. These events are accompanied by a sudden loss of magnetic confinement and, as such, pose a considerable threat to the integrity of the fusion machine. Over the course of my PhD, I collected an extensive database of disruptive discharges from COMPASS, AUG, JET and DIII-D to study the signs of a catastrophic end in fusion plasmas. In this upcoming FusionEPTalks, I will introduce an analytical model of the rotating magnetohydrodynamic modes that appear during braking and wall locking ahead of a disruption. We will look at the steps which were taken to validate this model. You will thereby understand how several factors can influence the mode duration, a key figure for disruption prevention. The corresponding scaling law, derived from this work, yields predictions for ITER from hundreds to thousands of milliseconds. This bodes well for the timely deployment of a mitigation strategy.

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