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# Use of MHD Activity for Disruption Prediction in Tokamaks

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Tokamak plasma disruptions are a threat in achieving a stable controlled nuclear fusion device, thus being very important to consider the development and interconnection between disruption alarm systems and mitigation control systems. In absence of a cohesive theoretical framework based on MHD theory that contains all possible activiy that can precede a disruption, several studies have been applied to tackle this issue. The development of mode locking has been identified as one of the most predictive features. In this work, we intend to go beyond the locked mode to identify other MHD modes that may be relevant for disruption prediction, using Machine Learning and Deep Learning based models and techniques. Additional MHD based features will be relevant to correlate with other phenomena.
Summing up, this work intends to offer a more detailed insight into the processes that cause disruptions in tokamaks, as well as a robust disruption prediction model that can be analysed and potentially be implemented in current and future tokamaks, helping to solve one of the great challenges that are imposed in achieving a stable controlled nuclear fusion device.

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