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Analysis of multidimensional signals as classifiers for machine learning prediction of disruptions MATTHEW PARSONS, WILLIAM TANG, ELIOT FEIBUSH, Princeton Plasma Phys Lab — ITER and future tokamaks beyond will require systems to predict oncoming disruptions so that damage to the machine can be avoided or mitigated. The use of supervised machine learning has proven to be successful in predicting the onset of disruptions with higher accuracy than a simple locked-mode detector, but only zero-dimensional time trace signals have been considered to examine this. We present initial results from our analysis of multidimensional signals (time + spatial dimensions) from the JET database to identify higher fidelity, physics-based classifiers that would allow the development of disruption prediction tools that are portable between machines.

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