

Abstract Submitted  
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**Extraction of coherent bursts from turbulent edge plasma in Tokamak Tore-Supra using orthogonal wavelets** MARIE FARGE, LMD-IPSL-CNRS, Ecole Normale Supérieure, Paris, KAI SCHNEIDER, CMI, Université de Provence, Marseille, PASCAL DEVYNCK, Association CEA-Euratom, Cadarache, ENS-CEA-EURATOM COLLABORATION — A wavelet-based method to extract coherent bursts out of turbulent signals is presented. The signal is projected onto an orthogonal wavelet basis, a threshold is applied to the wavelet coefficients, and the denoised signal is reconstructed in physical space. The threshold value is recursively determined and thus no adjustable parameters are required. The signal is split into two orthogonal components, a coherent and an incoherent one, whose properties can be studied independently. Statistical diagnostics based on the wavelet representation are introduced to compare the scaling behaviour and intermittency of the total signal and its coherent and incoherent components. The extraction method is applied to ion density of edge plasma measured in the scrape-off layer of the tokamak Tore Supra, Cadarache, France. We show that this procedure disentangles the coherent bursts, which contain most of the density variance, are intermittent and long-time correlated with non-Gaussian statistics, from an incoherent background noise, which is much weaker, non-intermittent and almost decorrelated with quasi-Gaussian statistics.

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