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Automated Analysis of Turbulent Electron Temperature Fluctuation Measurements at ASDEX Upgrade[1] CHRISTIAN YOO, RACHEL BIELAJEW, Massachusetts Institute of Technology, GARRARD CONWAY, Max Planck Institute for Plasma Physics, PEDRO MOLINA CABRERA, PABLO RODRIGUEZ-FERNANDEZ, ANNE WHITE, Massachusetts Institute of Technology, THE ASDEX UPGRADE TEAM — Turbulence is known to be responsible for anomalous transport in tokamaks, reducing energy confinement times and limiting reactor performance. The correlation electron cyclotron emission (CECE) diagnostic installed on the ASDEX Upgrade tokamak measures broadband, long-wavelength electron temperature fluctuations, yielding insight into turbulence-driven transport. Automated analysis of CECE data is difficult due to the presence of artifacts stemming from various operating conditions that can obscure the turbulent temperature fluctuations. Here we present preliminary results of an automated computational method that accounts for these artifacts. We create a logic-based algorithm to detect artifact-causing factors and flag affected data. We then implement a machine-learning algorithm to quantify the resulting variation of measurements. These capabilities will enhance the versatility of the CECE diagnostic, enabling it to contribute to our understanding of turbulence and transport in a wider range of tokamak operating conditions.

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