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Recurrence quantification analysis of simulations of near-marginal dissipative-trapped-electron-mode turbulence RAUL SANCHEZ, Universidad Carlos III de Madrid, SPAIN, JOSE ANGEL MIER, Universidad de Cantabria, SPAIN, LUIS GARCIA, Universidad Carlos III de Madrid, SPAIN, DAVID NEWMAN, University of Alaska, USA — Recurrence quantification analysis (RQA) is a powerful tool to study dynamical systems and to help us understand and characterize the underlying physics when a transition occurs. The idea is based on the fact that, given sufficiently long time lapses, every dynamical system returns to states arbitrarily close to those it had in the past. This fundamental property of dynamical systems is called recurrence. In this contribution, we analyze, using the RQA technique, the recurrence properties of time series obtained from a series of numerical simulations of a dissipative-trapped-electron-mode (DTEM) turbulence model in near-marginal conditions where a transition in the nature of turbulent transport was observed as a subdominant diffusive channel strength is increased from zero [J. A. Mier et al., *Phys. Plasmas* **15**, 112301 (2008)] . The results of the RQA analysis clearly show that the degree of determinism and complexity of the dynamics closely follows the degree of non-diffusiveness in the observed transport.

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