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Universal Probability Distribution Function for Bursty Transport in Plasma Turbulence[1] INGMAR SANDBERG, National Technical University of Athens, Association Euratom- Hellenic Republic, Greece, SADRUDDIN BENKADDA, France-Japan Magnetic Fusion Laboratory, LIA 336/UMR 6633 CNRS-Universite de Provence, Marseille, France, XAVIER GARBET, I.R.F.M., CEA Cadarache, France, GEORGE ROPOKIS, National Observatory of Athens, Greece, KYRIAKOS HIZANIDIS, National Technical University of Athens, Association Euratom - Hellenic Republic, Greece — Bursty transport phenomena associated with convective motion present universal statistical characteristics among different physical systems. A stochastic univariate model and the associated probability distribution function for the description of bursty transport in plasma turbulence is presented. The proposed stochastic process recovers the universal distribution of density fluctuations observed in plasma edge of several magnetic confinement devices and the remarkable scaling between their skewness S and kurtosis K. Similar statistical characteristics of variabilities have been also observed in other physical systems that are characterized by convection such as the X-ray fluctuations emitted by the Cygnus X-1 accretion disc plasmas and the sea surface temperature fluctuations.

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