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Electron Transport in Magnetron Discharges TIBERIU MINEA, LISE CAILLAULT, AGUSTIN LIFSCHITZ, JEAN BRETAGNE, LPGP - UMR 8578 : CNRS-Universite Paris-Sud, 91405 Orsay, France, CLAUDIU COSTIN, Faculty of Physics, Alexandru Ioan Cuza University, Iasi, Romania — In most of the magnetized plasma devices and astrophysics plasmas, electron cross field transport is significantly different from the classical theory and occasionally even from Bohm's diffusion. According to recent publications, this transport has been shown to be anomalous. Numerical and analytical investigations reported the possibility of so-called turbulence phenomena, originating from high magnetic field gradients within the boundary layer. The present work reports on the study of the electron transport in magnetron discharge, as it comes out from four different models: classical fluid theory, fluid model including magnetic turbulence, PIC-MC model for DC and pulsed magnetron discharges. All numerical codes have been developed to describe plasma dynamics in two dimensions (2D) for magnetron reactors operating at low pressure ($\sim$1 Pa) in argon. The obtained plasma behaviours are compared and electron transport is discussed.

Tiberiu Minea
LPGP - UMR 8578 : CNRS-Universite Paris-Sud, 91405 Orsay, France

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