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The effect of plasma triangularity on turbulent transport: modelling TCV experiments by linear and non linear gyrokinetic simulations ALESSANDRO MARINONI, STEPHAN BRUNNER, YANN CAMENEN, STE-FANO CODA, JONATHA GRAVES, XAVIER LAPILLONNE, ANTOINE POCH-ELON, OLIVIER SAUTER, LAURENT VILLARD, Ecole Polytechnique Federale de Lausanne (EPFL), Centre de Recherches en Physique des Plasmas CH-1015 Lausanne, Association Euratom-Conf. Suisse, ECOLE POLYTECHNIQUE FED-ERALE DE LAUSANNE (EPFL), CENTRE DE RECHERCHES EN PHYSIQUE DES PLASMAS TEAM — Experimental evidence in the TCV tokamak revealed that the core electron heat transport is significantly reduced by a negative triangularity (δ) configuration. This variation in heat transport cannot be explained by the flux surfaces compression; rather, it must be due to a (partial) stabilization of the microinstabilities at play in a positive d configuration. The present work is a theoretical investigation of the effect exerted by triangularity on plasma turbulence of actual TCV shots, using the gyrokinetic code GS2. A complex interplay of deeply and barely trapped particles, which react in opposite ways to triangularity, results in a stabilizing effect of negative δ on Trapped Electron Modes both in the linear and non-linear phases. The non-linear simulations are in qualitative agreement with the experimental results.

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