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Global gyrokinetic simulations of microturbulence for TCV-relevant plasmas G. MERLO, S. BRUNNER, S. CODA, Z. HUANG, O. SAUTER, L. VILLARD, EPFL, CRPP, CH-1015 Lausanne, Switzerland, T. GÖRLER, Max-Planck-Institut für Plasmaphysik, Boltzmannstr. 2, D-85748 Garching, Germany, F. JENKO, D. TOLD, UCLA Physics & Astronomy, Portola Plaza 2, Los Angeles, CA 90095, USA, Y. CAMENEN, Aix-Marseille Université CNRS, PIIM UMR 7345, 13397, Marseille, France, A. MARINONI, MIT, Plasma Science and Fusion Center, Cambridge, MA 02139, USA — Due to significant global effects, in smaller-sized tokamaks such as TCV local (flux-tube) microturbulence simulations are unable to fully reproduce experimental transport levels. We will therefore present results obtained with the global version of the gyrokinetic code GENE aiming at addressing two observations made on TCV. 1) Effect of negative triangularity: it has been experimentally demonstrated that half the heating power is required to maintain the same electron temperature profile when the sign of triangularity of the Last Closed Flux Surface is reversed from δ=0.4 to -0.4 . Local simulations fail at reproducing both the actual transport level and positive/negative δ flux ratio. Therefore global simulations have been carried out with the aim of recovering the experimental results. 2) GAM physics: a complete multi-diagnostic characterization of the Geodesic Acoustic Mode has been reported from TCV. In particular the dependency of frequency, radial location and wave vector on plasma parameters have been experimentally investigated. Global runs modeling these TCV conditions will be discussed and simulations compared to experiments with the help of synthetic diagnostics.

Christian Theiler
EPFL, CRPP, CH-1015 Lausanne, Switzerland

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