

Abstract Submitted
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Development of an I-mode scenario on the TCV tokamak ANTOINE MERLE, PEDRO MOLINA, OLIVIER SAUTER, BASIL DUVAL, EPFL, SPC, AMANDA HUBBARD, MIT, PSFC, TIM HAPPEL, MPG, IPP, ELEONORA VIEZZER, Univ. Seville, THE TCV TEAM, THE EUROFUSION MST1 TEAM — The I-mode is a promising regime of operation which offers high energy confinement, thanks to the formation of an edge temperature pedestal, low particle confinement and nearly stationary conditions, with the absence of ELMs. This regime is usually obtained by operating with unfavourable ion $B \times \nabla B$ drift, away from the active X-point, and keeping the heating power below the H-mode threshold. This has been achieved on several tokamaks such as Alcator C-Mod, ASDEX Upgrade and DIII-D. This paper reports on an ongoing effort to develop an I-mode scenario on the TCV tokamak as part of the TCV domestic campaign and the EUROfusion MST1 campaign. On other tokamaks the heating power window for accessing I-mode was found to be typically smaller at smaller magnetic field. With typical operation at $B_T = 1.45$ T and an absolute maximum of $B_T = 1.54$ T, the TCV tokamak will help investigate whether the I-mode regime can be extended to low toroidal magnetic field. The results of this campaign will be discussed, in particular changes in energy confinement or in the pedestal temperature profiles will be closely investigated. The pedestal fluctuation characteristics will also be investigated using standard and Doppler reflectometer fluctuation measurements.

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