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Modelling of fast ion diffusion with internal kink in TCV with positive and negative triangularity MATTEO VALLAR, Ecole Polytechnique Federale de Lausanne, MARIO PODESTA', Princeton Plasma Physics Laboratory, ANTOINE MERLE, OLIVIER SAUTER, LORENZO STIPANI, DUCCIO TESTA, Ecole Polytechnique Federale de Lausanne — Internal kink is a common instability seen in tokamak when the axis q profile goes below unity. It impacts on the transport of bulk plasma and fast ions. In TCV ($R_0/a = 0.88/0.25$) fast ions are fed to the plasma using neutral beam tangential injection at 25 keV. TCV is equipped with magnetic coils which measure the three orthogonal components of the magnetic field at 2 MHz sampling frequency. Effect of internal kink on fast ions in TCV can be seen experimentally with Compact Neutral Particle Analyzer and Fast Ion D-α diagnostic. We will show comparison with interpretative modelling including enhanced fast ion diffusion caused by internal kink on shots with positive and negative triangularity. These shots are chosen to have similar q-profile and internal kink conditions. The perturbation (assumed as ideal) of the magnetic flux surfaces is modeled using KINX code. This is used to compute the transport matrices with the ORBIT code. In this step, magnetic coils measurement are used to correctly scale the normalized radial field perturbation by KINX. The last part consist in applying the *kick-model* using the induced transport coefficients in TRANSP/NUBEAM. This will allow us to simulate synthetic diagnostics and evaluate the impact on integrated modeling.

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