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Rotation studies in electron Internal Transport Barriers on TCV¹ LUCIA FEDERSPIEL, BASIL PAUL DUVAL, OLIVIER SAUTER, YANIS AN-DREBE, STEFANO CODA, ALEXANDER KARPUSHOV, Ecole Polytechnique Federale de Lausanne (EPFL), Centre de Recherches en Physique des Plasmas (CRPP), Station 13, CH-1015 Lausanne — This paper reports measurements of intrinsic toroidal and poloidal plasma rotation during the evolution of electron Internal Transport Barriers (eITBs) on TCV. A CXRS diagnostic-beam system provides ion parameter profiles for stationary pre-barrier formation and eITB sustainment phases with a 15mm spatial resolution across the entire barrier width. This special configuration is used to assess the role of E_r and $E \times B$ shearing for the eITBs sustainment and formation in TCV. Two eITBs targets were developed either by applying central counter-ECCD with off-axis ECH, giving a central barrier, or off-axis co-ECCD with central ECH/counter-ECCD. The first target, characterized by a central Te barrier, is used to study the evolution of the rotation and E_r with respect to the development of MHD modes, ECH power and plasma density. MHD modes cause a toroidal rotation reversal leading to increasingly positive E_r . It is also shown that, when applying central counter-ECCD, a peaked counter current rotation is sustained in the core with rotation values approximately doubled compared with the ECH phase where both cases have flat E_r profiles, suggesting that the $E \times B$ shearing does not influence the eITB.

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