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Intrinsic rotation and radial electric field in TCV plasmas ALESSANDRO BORTOLON, BASIL PAUL DUVAL, ALEXANDER KARPUSHOV, YANIS ANDREBE, CRPP-EPFL, Association EURATOM - Confédération Suisse, CH-1015 Lausanne, Switzerland — We present intrinsic rotation results of TCV tokamak, based on upgraded CXRS diagnostic. Toroidal rotation u_ϕ has been measured by 2 horizontally viewing systems, each one recently equipped with 40 optic fibres for light collection and back illuminated CCD detector. Measurements now cover the mid-plane plasma diameter, up to the LCFS, with radial resolution of 6 mm and sample rate of 50 ms. A third high resolution vertical view simultaneously provides poloidal rotation profile u_θ on the LFS mid-plane. This setup has been used to characterize rotation and radial electric field E_r (from the radial force balance) in L-mode plasmas with negligible external torque. $E_r \simeq -4$ kV/m is measured in gradients region, reversing to positive values in occurrence of u_ϕ inversions. For $\rho_\psi \simeq 1$, a sharp peak in u_θ produces a $E_r < 0$ well with values down to -5 kV/m, reminiscent of H-mode pedestal physics. Assessing the E_r profile dependence on plasma parameters and magnetic configuration, we will address E_r impact on energy and momentum transport.

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