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Effects of Edge DC Biasing on Plasma Rotation and Transport in a Toroidal Geometry. ASHILD FREDRIKSEN, University of Tromso, Norway, CLAUDIA RICCARDI, Universita' degli Studi di Milano - Bicocca, Italy — We report results from experiments performed to study how a change in boundary conditions is affecting the plasma states in the toroidal geometry of the Blaamann device in Tromso. The boundary condition was changed by applying a DC bias on a limiter extended around the entire poloidal circumference of the plasma column. Two distinctly different plasma potential states were found. One state was associated with a bias at or negative with respect to the floating potential of the limiter, and a small ion saturation current. The other state was associated with a positive bias with respect to the floating potential, near or in the electron saturation regime of the limiter. In the latter case the potential minimum in the middle of the cross-section was significantly less negative than in the case of ion-saturation current to the limiter. On the other hand, the grounded limiter provided the best confinement properties, for which the density maximum was significantly higher than for both more positive and more negative biases. This state also had the lowest fluctuation levels, and near zero poloidal velocities close to the boundaries, as well as the smallest radial, anomalous particle transport.

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