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Convective cells and blob control in a simple magnetized torus<sup>1</sup> CHRISTIAN THEILER, Centre de Recherches en Physique des Plasmas (CRPP), Ecole Polytechnique Federale de Lausanne (EPFL), 1015 Lausanne, Switzerland, AMBROGIO FASOLI, IVO FURNO, JOAQUIM LOIZU — In view of controlling wall and divertor heat loads in magnetic fusion devices, we investigate the possibility of creating convective cells by means of biased electrodes for turbulence and blob control in the simple magnetized toroidal plasmas of TORPEX. A two-dimensional array of 24 electrodes is installed on a metal limiter to test different biasing schemes. This allows influencing significantly the frequency of the dominant mode as well as radial and vertical velocities of blobs. Detailed measurements along and across the magnetic field provide a rather clear picture of the effect of the biasing. The biased electrodes produce perturbations of the plasma potential and density profiles that are fairly uniform along the magnetic field. Background flows influence the location where potential variations are induced. The magnitude of the achievable potential variations in the plasma is strongly limited by cross-field currents. A quantitative discussion on the origin of these currents is presented.

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