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A parametric study of the stratification of electronegative plasmas and the formation of ion-ion plasmas due to magnetic filtering QUENTIN DELIVRE, ANE AANESLAND, PASCAL CHABERT, LPP, CNRS - Ecole Polytechnique — A parametric study of the formation of ion-ion plasma regions at the periphery of magnetized electronegative plasmas is presented. The experiments are performed in the downstream chamber of a Helicon source and "pure" ion-ion plasma regions are obtained in both SF6 and in Oxygen. The experimental mapping of the ion-ion plasma formation and its dependency on neutral density, magnetic field, radial position (position perpendicular to the magnetic field) and power is compared with a recently developed analytical model. The model considers a cylindrical finite geometry with the magnetic field lines parallel to the cylinder axis, and assumes isotropic electron temperatures. A relatively good agreement between the experiments and the analytical model is obtained, but the experiments shows the importance of the electron temperature, which decreases perpendicular to the magnetic field.

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