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First Measurements of Electron Energy Distribution on RFX Edge Plasma.

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An electron energy analyzer (EEA) with a sweepable repeller voltage capability has been installed on the reversed field pinch experiment RFX as a joint collaboration between the Electrotechnical Laboratory in Tsukuba and the RFX experiment in Padova. The diagnostic is equipped with magnetic coils and has been inserted in the edge region of the plasma. The electron energy distribution at the edge has been measured and compared with different fitting models. It is found that the electron flow on the electron drift side due to superthermal electrons is typically at least an order of magnitude larger than that on the opposite side. The temperatures derived from the EEA are comparable to the electron temperature on axis and much larger than the electron temperature at the edge measured by Langmuir probes. The dependence of the superthermal electron temperature on different collisionality regimes has been investigated.