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Role of Secondary Electrons in Anode Sheath GILLES CARTRY, LOIC SCHIESKO, JEAN-MARC LAYET, MARCEL CARRERE, CNRS-Universite de Provence — We study electron attracting sheath (anode sheath) both experimentally and theoretically. Experiments are conducted in a low-pressure (0.05 and 0.1 Pa) helicon reactor. A positively biased Cu sample faces a mass and energy analyser. Plasma electrons are accelerated towards sample and ionize background gas creating Ar^+ ions. These ions in turn are accelerated towards the mass and energy analyser and are detected according to their energy. The energy at which an ion is detected corresponds to local electrical potential at which the ion has been created. Measurements show that no ion is detected with full energy. We explain this considering secondary electrons emitted from surface upon primary electron impacts. These secondary electrons are trapped by potential, accumulate near the sample, and cause a very fast potential variation close to the sample. This fast variation occurs on a too short distance to observe a significant ionization signal and consequently no ion is detected with full energy. Measurements are compared with a numerical model solving Poisson equation including secondary electrons and computing ion energy distribution.

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