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Heavy Ion Fusion Gas Desorption Issues

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Accelerators for HIF have an economic incentive to fit beam tubes tightly to beams and to repetitively pulse at \textasciitilde 5Hz. This places them at risk from gas desorption runaway, and from electron clouds produced by secondary electrons and ionization of gas. We use a variety of charged particle diagnostics in quadrupole magnets and we measure the flux of electrons and gas evolved from a target, near grazing incidence. We are adding electron modules to the WARP beam-dynamics PIC code, with the goal of a self-consistent, experimentally-validated tool for predicting electron effects in positive-beam accelerators.