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Effects of Secondary Electron Emission on the Two-Stream Instability in Hall Thrusters[1] ANTON STEPANOV, N.J. FISCH, Princeton University — In Hall thruster discharges, secondary electron emission (SEE) electrons produced at the chamber wall are accelerated radially into the channel by the sheath potential. The plasma inside the channel moves in the azimuthal direction due to E x B rotation. Next to the channel wall, this rotation could give the bulk plasma a greater azimuthal velocity compared to the SEE beam. The resulting nonmonotonic electron velocity distribution function (EVDF) might be two-stream unstable. In this work we consider the possibility of such a two-stream instability in the combined SEE beam/plasma EVDF in the azimuthal dimension.

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