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Evolution of beams in a plasma channel due to beam break up¹ GREGORY PENN, REMI LEHE, JEAN-LUC VAY, CARL SCHROEDER, ERIC ESAREY, Lawrence Berkeley Natl Lab — We study the dynamics of beam break-up (BBU) of an accelerated electron beam in a plasma channel. Particle-in-cell simulations using the codes WARP and FBPIC are presented and interpreted in terms of theoretical calculations for the plasma-induced fields and the evolution of the instability. We focus on cylindrical channels for simplicity, and other geometries are considered to better understand the impact of BBU on electron beams undergoing laser-plasma wake field acceleration. We compare our findings with other published results.

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