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Discussion of emittance of a low-energy secondary beam from a long particle production target HISHAM SAYED, SCOOT BERG, HAROLD KIRK, Brookhaven National Laboratory, KIRK MCDONALD, Princeton University, ROBERT PALMER, Brookhaven National Laboratory — Particle production using high power beam impinging on high z material has various applications for muon accelerators and neutrino factories. A key parameter of the secondary beam is its 6D emittance, where a substantial efforts are exerted to cool down the 6D emittance of the secondary beam utilizing ionization cooling techniques. The physics process of particle production creates a secondary beam with a large angular divergence, which leads to a transverse emittance growth. An axially symmetric magnetic field may act as a mitigator (damping effect) to the initial emittance growth of the secondary beam. In this work we show the dependence of the secondary beam transverse and longitudinal emittance on the axially symmetric focusing field within which the particle production takes place.

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