

Luminosity and Crab Waist Collision Studies

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In high energy physics, the luminosity is one useful value to characterize the performance of a particle collider. To gain more available data, we need to maximize the luminosity in most collider experiments. With the discussions of tune shift involved the beam dynamics and a recently proposed “crabbed waist” scheme of beam-beam collisions, I present some qualitative analysis to increase the luminosity. In addition, beam-beam tune shifts and luminosities of electron-positron, proton-proton/proton-antiproton, and muon-muon colliders are discussed.

Primary author: Mr WU, Wanwei (University of Mississippi)

Co-author: Prof. SUMMERS, Don (University of Mississippi)

Presenter: Mr WU, Wanwei (University of Mississippi)

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