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An experimental study of X-Y emittance repartitioning in KEK-STF

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In a linear collider, the colliding beam has to be flat in the transverse plane to suppress energy spread by Beamstrahlung and to maximize the luminosity, simultaneously. In the current design of ILC, the flat beam is realized by the asymmetric emittance generated by the radiation-damping effect. We propose to generate the equivalent beam directly in the injector linac employing the emittance repartitioning. As an experimental demonstration, a beam experiment was carried out at KEK-STF. We present the experimental results.

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