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Preliminary concept of a low-energy small-size e+e- collider with Crab Waist collision scheme

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A novel collision scheme called Crab Waist (CW) seems very promising to increase luminosity of e+e- colliders staying within the achieved parameters of storage rings (beam current, bunch length, emittance, etc.). However, the CW approach requires a rather complicated magnet lattice design, especially the interaction region, which should be lengthy enough to accommodate the equipment necessary for CW. In this paper we explore a concept of a low-energy (from phi meson to psi meson) small-size (less than 100 m in orbit length) electron-positron collider with CW collision technology providing the luminosity of about 10^+34 cm-2 s-1. Such issues of accelerator physics and technology as magnetic lattice, beam dynamics and lifetime, intrabeam scattering, magnet design, etc. are discussed.

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