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## Concept of a low energy electron-positron collider for dimuonium study

We discuss a low energy  $e^+e^-$  collider for production of the not yet discovered  $\mu^+\mu^-$  bound state (dimuonium). In our design we follow the Brodsky-Lebed proposal of the large-crossing-angle  $e^+e^-$  intersection, when the dimuonium carries non-zero momentum and decays to  $e^+e^-$  pair far apart from the beam collision region. The latter provides effective suppression of the Bhabha scattering background. We study experimental constraints and following requirements for the collider development. A preliminary layout is considered, the main parameters are obtained. The expected peak luminosity at the  $\mu^+\mu^-$  production threshold is  $8 \times 10^{31}$ . The same machine can be used for high statistic study of hadronic processes ( $e^+e^- \rightarrow \pi^+\pi^-, \pi^+\pi^-\pi^0, \pi^0\gamma$  etc.) and search for rare processes in the center-of-mass energy range below 960 MeV.

### Experimental Collaboration

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