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Prospects of high energy photon colliders

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High energy photon colliders ($\gamma\gamma, \gamma e$) based on Compton scattering of laser photons on high energy electrons are considered for many years as a natural option for $e+e-$ linear colliders. Photon colliders can study New Physics at energies and statistics similar to those in $e+e-$ collisions—but in different reactions. In some cases, photon colliders provide access to higher masses or allow the study of some phenomena with higher precision. They do not need positron and damping rings are not absolutely needed as well. In addition to photon colliders at ILC and CLIC the discovery of the Higgs boson has triggered several proposals of photon collider Higgs factories based on recirculation linacs in rings (incl. HERA and Tevatron tunnels). In this talk, following a brief discuss of physics motivation, technological aspects and photon colliders based on ILC and CLIC, I give a critical overview of the recently proposed photon-collider Higgs factories.

Summary

Primary author(s) : Prof. TELNOV, Valery (Budker INP and Novosibirsk Univ.)

Presenter(s) : Prof. TELNOV, Valery (Budker INP and Novosibirsk Univ.)

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