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Polarized positron source for ILC.

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We propose the scheme of a polarized positron source for the International Linear Collider (ILC). The process is based on a well-known principle of electron-positron pair creation from polarized gamma rays produced by Compton scattering of the circularly polarized laser light off a high-energy electron beam (e-beam). Our system employs multiple interactions of a 6GeV e-beam produced by a linac with CO2 laser beams circulating inside the cavity of a regenerative laser amplifier. Ten laser/e-beam interaction points are sufficient to generate the required intensity of the polarized positrons of the order of 1014/sec. Each component in the proposed system relies on technologies that were demonstrated previously. The presentation will cover proposed laser system as well as electron beam accelerator.

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