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Low energy e^- driven e^+ source for ILC

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An electron driven positron source for ILC is studied. The electron energy is relatively low, 2.2 GeV. In such energy, the production target can be thinner than that for high energy case; The thinner target causes higher positron yield per electron normalized by its energy. On the other hand, higher intensity electron beam is required to recover the real positron yield (un-normalized by its energy) due to the low electron energy. Lithium lens capture optics increases the capture efficiency and compensate this intensity issue. As target, a liquid Pb system is assumed. Liquid Pb and BN window may have very high performance limit on the positron generation, but Pb boiling is a possible problem. An optimization by considering those facts is made.

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