Stacking Simulations for Compton Positron Sources of Future Linear Colliders

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The Compton positron source of a future linear collider must obtain the target bunch population by accumulating a large number of positron packets, arriving either in a number of bursts from a “Compton ring”, with intermediate damping of the scattering electron beam, or quasi-continually from a “Compton energy recovery linac”. We present simulation results for the longitudinal stacking of Compton positrons in the ILC damping ring and the CLIC pre-damping ring, reporting parameter optimization, stacking efficiency, possible further improvements, and outstanding questions.