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Jet energy calibration and study of Left-Right Asymmetry using e+e- → γZ process at the ILC

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For the electroweak precision study, left-right asymmetry in the total rate for Z boson production (ALR) is important since it can provide a very useful constraint for new physics as well as for operators in the Standard Model (SM) Effective Field Theory, which provides a mathematical framework to express the deviation from the SM by a set of higher dimensional operators model independently. It turned out that the precision of the ALR measurement done at SLC, being at around 1%, is not good enough for the global fit. It is hence motivated to improve this observable at the ILC. Complementary to the method at Z-pole, at the ILC250 we can use the radiative return process, e+e- -> γZ, to measure ALR. We will report the full detector simulation based on the International Large Detector (ILD), which is a detector concept for the ILC, for the ALR measurement including estimation of systematic errors.

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