Contribution ID: **755** Type: **Poster Presentation**

Full simulation study of the process $e^+e^- \to b\bar{b}$ at \sqrt(s) = 250 GeV at the ILC

The heavy quark doublet plays a central role in the quest for new physics. The complementary between studies of electroweak top quark production and bottom quark production is therefore intuitively clear and pointed out in the literature. Let us remind that the tension between the LEP measurement and the Standard Model prediction of the forward-backward asymmetry A^b_{fb} is still one of the unsolved questions in the field and may be interpreted as a first manifestation of new physics in the heavy quark sector. The process $e^+e^- \to b\bar{b}$ at the ILC offers a unique opportunity for a final word on the tension. Polarised beams allow for a large disentangling of the coupling constants or form factors that govern the $\gamma/Z\, b\bar{b}$ vertex.

The contribution will present a detailed simulation study of the process $e^+e^- \to b\bar{b}$ at 250\, GeV with the ILD Detector. Besides the phenomenological implications, the contribution will demonstrate that with a careful analysis of the final state the charge of the b-quarks can be determined on an event-by-event basis with the ILD Detector. Such a capability is unprecedented by past and present particle physics experiments.

Experimental Collaboration

ILD Collaboration

Primary authors: BILOKIN, Sviatoslav (Universite de Paris-Sud 11 (FR)); RICHARD, Francois (LAL); POESCHL, Roman (Universite de Paris-Sud 11 (FR))

Presenter: BILOKIN, Sviatoslav (Universite de Paris-Sud 11 (FR))

Session Classification: Poster session

Track Classification: Top and Electroweak Physics