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RH neutrino pair-production at ILC

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We study the search for Right Handed Neutrinos (RHN) at ILC. RHN are introduced by several extensions of the SM to explain the tiny neutrino mass. If RHN is a Majorana particle, RHN pair production is allowed in e^-e^+ collisions. We focus on RHN pair production based on a minimal $U(1)_{B-L}$ model. A distinctive signature is a pair of same sign leptons, a smoking-gun for Lepton Number Violation. This same sign lepton final state is almost free of SM backgrounds.

In our study we use full detector simulation to analyze RHN production at ILC. We generated the signal process, investigated its properties, developed reconstruction and selection strategies and evaluate the sensitivity at ILC, considering full SM backgrounds. We derive exclusion limits on minimal $U(1)_{B-L}$ parameters at ILC.

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