

Alternative searches of quintuplet fermions at ILC

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Large fermionic multiplets appear in different extensions of the Standard Model, which are essential to predict small neutrino masses, relic abundance of the dark matter and the measured value of muon anomalous magnetic moment. Such models may contain quintuplet of fermions along with scalar multiplets. If the quintuplet fermions (doubly and singly charged fermions, neutral fermion) are heavier than the scalars, once pair produced, they decay via the charged and neutral scalars. The scalars decay into W/Z bosons, resulting in a final state of multiple leptons and jets. As ILC has relatively cleaner environment than the hadron collider, it is possible to obtain exclusion and discovery limits in these channels and mass reconstruction of the quintuplet fermion is also possible.

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