

Abstract

Standard Model has been very successful theory in explaining subatomic phenomena. The existence of building blocks of universe such as quarks, leptons (Fermions) and bosons and laws they follow has been understood very well under the Standard Model. But some major shortcomings is integral part of the Standard Model i.e., (a) It does not consider Gravity, it unifies only electromagnetic force, weak force and includes also strong force, (b) It does not explain the existence of dark matter and dark energy, (c) It does not explain the fact Neutrinos change Flavor which is best explained by the fact that Neutrinos have non-zero mass. So we need Physics Beyond the Standard Model to explain such facts of nature. With this motivation, in this nal year research thesis project I study B-L Model and Minimal Left-Right Symmetric Model(MLRSM) which explain the fact that Neutrinos are massive through 'See-saw Mechanism'. I explore the gauge sector and Higgs sector of MLRSM. The main focus of my project is on the Higgs Phenomenology of the MLRSM. We study the production of Doubly Charged Higgs at 14 TeV at LHC using MadGraph5 and FeynRules-2.3.3. Further, We study different-2 decay channels of Doubly Charged Higgs(dilepton Channel, double W-boson Channel etc.) and Singly Charged Higgs decay channels using MadGraph5.