Area Seminar

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| Title | Left-right symmetry and the charged Higgs bosons at the LHC. |
| Date and Time | 12/06/2014 14:30:00 |
| Speaker | Gulab Bhambhaniya<br>PRL |
| Area | Theoretical Physics |
| Venue | Room No. 469 |


Abstract

Left-right symmetric models explain spontaneous violation of parity, which is ad-hoc in the Standard Model (SM). Along with this, LR symmetric models also provide light neutrino masses naturally. In this talk, we consider Minimal Manifest Left-right symmetric model (MLRSM) at TeV scale. We will focus on the charged Higgs boson sector of the model, in the context of LHC discovery search for beyond SM physics. Effects of charged scalars at colliders depend on their masses. Smaller the masses, larger effects are expected. But then the question is how small their masses can be, keeping the parity breaking scale large? Using the experimentally measured mass of the SM-like Higgs boson, experimental bounds on parity breaking scale and constraints due to the flavor changing neutral current (FCNC) effect, we analyzed the spectra of the charged scalars. The production of charged Higgs bosons and decay of these lead to multilepton signals at the LHC. Background and signals are analyzed with suitable kinematic cuts. We provide some benchmark points where simulations are done to make a realistic estimation of the signal events over the SM backgrounds. We will also discuss the impact of the charged scalars in the Higgs to di-photon decay rate .