

Institut Ruđer Bošković  
ZAVOD ZA TEORIJSKU FIZIKU  
Bijenička c. 54  
ZAGREB, HRVATSKA

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SEMINAR ZAVODA ZA TEORIJSKU FIZIKU

(Zajednički seminari Zavoda za teorijsku fiziku,  
Zavoda za eksperimentalnu fiziku IRB-a i Fizičkog odsjeka PMF-a)

## From Neutrino Masses to Lepton Number Violation at LHC

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Mjesto: IRB, dvorana I krilo

### Abstract:

While the Standard Model and the Higgs mechanism are proving triumphant in explaining the masses of elementary particles such as gauge bosons and charged fermions, a similar understanding for the masses of neutrinos is still missing. I review the possibility that parity is restored at low energies as in Left-Right Symmetric theories, which directly offer a framework for the neutrino mass mechanism. I first discuss the indirect bounds and the sensitivity in flavour changing and CP-violation observables, mainly K mesons and B in the future. Then I describe the observable consequences of low scale Lepton-Number Violation and the interplay between different phenomena, from neutrinoless double beta decay to striking production at LHC of new gauge bosons and new possible decays of the Higgs bosons with displaced vertices, all contributing to probe the neutrino mass origin.

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