GRADUATE STUDENT SEMINAR

Friday, 21st April, 4:00pm, Robeson 122

Lifetimes of the Heavy Neutral Leptons in the Okamura Model

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ABSTRACT

Recent neutrino oscillation experiments unambiguously showed that neutrinos are massive particles. The obvious question here for theoretical physicists is how to incorporate the description of the neutrino masses in the framework of the Standard Model of Elementary Particles. In my talk I am going to discuss the possible answers to this question (Dirac and Majorana type mass terms) and show an explicit example of a non see-saw type neutrino mass texture (a so-called Okamura Model) which can explain the observed mass spectrum of the light neutrinos and in addition to that predicts the existence of the heavy neutrinos at the TeV energy scale. This energy scale will soon be accessible for experimentalists (LHC) and the heavy neutrinos might be produced in a large amount. The question is whether or not it will be possible to detect them. To answer this question we need to know the lifetimes of the heavy neutrinos. I will present a convenient parametrization of the Okamura Model then show the result of my lifetime calculation and discuss its consequences.