Synopsis Seminar	
Seminar Title	: STUDY OF BARYOGENESIS VIA LEPTOGENESIS IN EXTENSION OF STANDARD MODEL WITH TRIPLET HIGGS SCALARS
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Abstract	: Two of the most intriguing shortcomings of the Standard Model (SM) are its inability to explain the matter-antimatter asymmetry of the universe and justify the existence of non-zero neutrino mass. This thesis is a study to accommodate neutrino mass generation and address the baryon asymmetry of the Universe (BAU) by extending the SM with triplet Higgs scalars. We consider three models based on type-II seesaw mechanism and study neutrino mass generation and baryogenesis through leptogenesis. The viability of these models is evaluated using the latest neutrino oscillation data. The parameter space study reveals a better understanding of the neutrino mass matrix and predicts neutrino mass hierarchy. With the first model containing two triplet scalars, we study unflavoured and two-flavored leptogenesis with explicit CP violation. The triplet scalars, having two distinct decay modes, provide two tree-level branching ratios. We investigate the effect of the hierarchy between these two branching ratios on the efficiency of leptogenesis, which has been compensated by introducing CP-violating phases through the neutrino mass model. We further enhanced the efficiency by considering flavor interactions. We have successfull achieved low-scale leptogenesis by considering the two triplet scalars and two scalar fields and predicts the traditional tribinaximal mixing pattern. The phase of the complex vacuum expectation value (vev) of the singlet scalar act sa a common source of CP violation in both low and high-energy sectors. The flavor symmetry of the singlet scalar and SCPV phase to accommodate the required CP asymmetry from the singlet matrix formalism. Again, we study the interplay of the hierarchical branching ratios of the decay of triplet scalars and SCPV phase to accommodate the required CP asymmetry for the observational range. In a minimal type-II seesaw model, with one right-handed neutrino and one triplet scalar, we obtain a Fritzsch-type texture for the neutrino mass matrix imposing SA_{4}(4) times Z_{2}(3) sym