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Three Flavoured Leptogenesis during Reheating

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The introduction of heavy right-handed neutrinos (RHNs) explains the smallness of neutrino masses and offers a mechanism for generating the baryon asymmetry of the universe via leptogenesis. While this is usually studied in thermal scenarios, a cosmological history beginning with inflation suggests a more natural alternative: the inflaton itself can decay into RHNs during reheating, this increased production enhances the produced asymmetry dramatically.

Early studies treated leptogenesis in a single-flavour approximation, but three lepton flavours exist, giving rise to flavour effects. Any accurate treatment must consider these flavour effects. However, this has not yet been done fully for leptogenesis during reheating even in a minimal model.

In this talk, we present the first consistent framework for flavoured leptogenesis during reheating, combining the non-thermal production of RHNs with a fully flavoured treatment of leptogenesis.

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