

# Singularities and String Theory

*Tuesday 5 October 2010 16:00 (30 minutes)*

In my talk I will present DLCQ procedure and explain how it can be generalized to some special IIA backgrounds, Singular Homogeneous Plane-Waves. These space-times can be seen as Penrose limits of a very large class of metrics, including the Friedmann-Robertson-Walker cosmological model, so a non-perturbative string theory model such as that provided by DLCQ can hopefully teach us something more about the physics of the singularity. In fact this procedure leads to a non-Abelian theory of matrix coordinates with a time-dependent Yang-Mills coupling, and we will discuss the behavior of this theory close to the singularity and far away from it, where one should make contact with perturbative string theory in flat space.

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**Session Classification:** The Universe - from the Big Bang to the Present