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Bianchi IX dynamics in dust time (G)

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It is well established that the near singularity dynamics of a Bianchi IX spacetime can be characterized as a series of transitions between Kasner solutions (BKL map). The majority of results obtained in this limit rely on an (intrinsic) geometric time variable (f(g)). This time variable is not suitable to determine the intermediate regime dynamics of Bianchi IX with matter. We study Bianchi IX with dust and show that using dust as time can give us a handle on the intermediate dynamics; a transition map involving a degree of freedom from the matter sector, which reduces to the BKL map near the singularity. Moreover, the analysis gives us a new physical picture in which the dynamics is characterized by a series of transitions between Bianchi I solutions with dust.

Primary authors: ALI, Masooma (University of New Brunswick);   Dr HUSAIN, Viqar (University of New Brunswick)

Presenter: ALI, Masooma (University of New Brunswick)

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