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Exploring Dynamic Wormholes with Modified Chaplygin Gas in the Emergent Universe.

In this talk, I will explore a dynamic wormhole solution featuring the Modified Chaplygin Gas (MCG) as the matter at the throat, characterized by an equation of state (EOS): $p = A\rho - B/\rho^\alpha$. Its global properties, its traversability and the necessary energy conditions to maintain it within the framework of the standard Big Bang cosmological model will be explored.

Further, I will investigate this dynamic wormhole model within the context of the Emergent Universe (EU) cosmological model, analyzing its properties to ensure both existence and traversability. Our findings reveal that the dynamic wormhole solution with MCG EOS satisfies all essential properties proposed by Morris and Thorne, and the embedding diagram indicates its geometry's dependence on the scale factor.

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