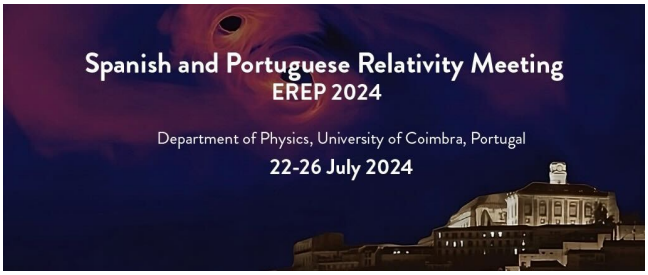

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Influence of spatial curvature in particle production during the early universe

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Observations suggest that the spatial sections of our universe are nearly flat, with spatial curvature, if present, being very small. It is proposed that any trace of curvature may have been erased during an early inflationary phase. Only at the onset of inflation, positive or negative spatial curvature may have affected spacetime dynamics. It is during this regime that cosmological particle production becomes most important, since the geometry is changing very rapidly.

In this presentation, we investigate the implications of positive or negative spatial curvature at the beginning of inflation on the abundance of gravitationally produced scalar particles after this period, which has been proved to be a viable mechanism for dark matter production.

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