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Model building aspects of cosmological collider

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The cosmological collider program, which aims to extract direct information about heavy particles during inflation via primordial non-Gaussianity, has attracted attention as it offers a window into high-energy physics beyond the reach of terrestrial experiments. However, analyses based on concrete particle physics models remain limited, and it is still unclear under what conditions a large cosmological collider signal can be generated. In this talk, we investigate the criteria for achieving a large signal in a generic framework, focusing on tree-level massive scalar exchange. We further confirm our findings explicitly using several multifield R^2 inflation models.

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