

Contributed Talk

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Title: Probing Inflation with Primordial Messengers

Abstract: Some of our best ideas on early universe physics are about to be put to the test by an unprecedented array of cosmological probes. The data these will collect span a vast range of scales, from the CMB to large scale structure, from pulsar timing arrays all the way to laser interferometers. This combined wealth of new information holds the potential to transform our understanding of cosmology and, possibly, also particle physics. In this context probing the earliest accessible epoch, inflation, is crucial: inflation can provide a cosmological portal to otherwise inaccessible energy scales. This is the “cosmological collider” idea. The spectacular success of the inflationary paradigm in explaining the origin of cosmic structure demands that we tackle a number of compelling questions still in need of an answer: what is the energy scale of inflation? What fields were active during inflation? In this talk I will review recent progress on the inflationary field content. I will survey different approaches to address the most pressing challenges and provide examples including axion-inflation models and the so-called effective theory approach. I will then focus on the key observables, starting with primordial gravitational waves, and discuss their prospects for detection.