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**Observational effects from dimensional compactification** ELENI-ALEXANDRA KONTOU, Bard College, JOSE-JUAN BLANCO-PILLADO, IKER-BASQUE, MARK HERTZBERG, ALI MASOUMI, Tufts University — Many of the extensions of the Standard Model involve theories that live on a higher dimensional spacetime. On the other hand, all our observational evidence points to a 4-dimensional description of the universe at low energies so one way to accommodate these higher dimensional theories is to allow for a compactification mechanism. In this work we explore the possibility that we can obtain any observational signature that points towards the existence of this type of process in our past. Certain so-called anomalies in the CMB data might be giving us a hint that the amount of inflation was just the minimal required to solve the cosmological problems but not longer. In such case, we might hope to see the effects of a previous state of the universe in the power spectrum of perturbations. We assume the spacetime is divided in two parts, the 3+1 dimensional manifold and an internal space of  $n$  flat compact dimensions. Before the compactification, the extra dimensions can either be expanding or contracting and we compare the observable consequences obtained within these different higher dimensional cosmological scenarios.

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