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Constraining cosmology with the summer fields of the South Pole Telescope

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The South Pole Telescope (SPT) is a 10-meters diameter telescope observing the Cosmic Microwave Background (CMB) from the South Pole, with angular resolution of arcminutes. A third generation camera (SPT-3G) was mounted on SPT in 2018, showing the remarkable performances of this experiment, which is currently one of the most competitive for CMB science. During the first observing season SPT-3G observed its baseline sky patch (1500 deg²) and obtained cosmological constraints consistent with those of the Planck mission. Deeper observations of the baseline field are currently ongoing, with the goal of achieving cosmological constraints at a level of precision comparable with Planck. In this talk I will present the ongoing analysis of an extension of the SPT-3G survey, which is a combination of the baseline SPT-3G field with the so-called “summer fields”, which are additional 3000 deg² that are observed during the Antarctic summer season. The SPT-3G summer data, combined with the SPT-3G baseline field and Planck data, are expected to provide even tighter cosmological constraints. I will present some preliminary results on the analysis of the SPT-3G summer fields, and forecasts on the constraints of cosmological parameters.

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