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CMB Lensing with TEReSiTA

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We are currently living in the most scientifically active era of the human kind: cosmology makes no exception. Our understanding of the Universe has radically changed during the last decades. However, while many long-standing questions about the nature of the Universe have been answered, many others have emerged. Why is the Universe's expansion accelerating? What is dark energy? What is dark matter? How does inflation work?

The study of the Cosmic Microwave Background, together with other cosmological probes, is one of the ways we can answer these new questions. In particular, studying the weak gravitational lensing effect of large-scale structure on the CMB photons, we can obtain information about both the primordial and the late-time Universe. I will show how.

In this talk, I present the Tomographic Ensamble of Realistic Simulations of Tracers and Anisotropies (TEReSiTA): a set of simulations of correlated galaxy catalogues and CMB observations. TEReSiTA, my original work, is a very useful and versatile tool for testing new paths in the quest for high-precision cosmological parameter estimation.

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