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Bridging the divide between theoretical and observational cosmology: ShapeFit results from the BOSS+eBOSS legacy

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Since the ~90's, there is an ongoing discussion in the community on how to analyse large spectroscopic galaxy survey maps. In a nutshell, there are two very different approaches on how to gain cosmological information from the 3D galaxy density distribution: i) model the galaxy 2-point correlation functions and directly fit them to the data as it is done for the Cosmic Microwave Background observations leading to optimal constraints for cosmological model parameters or ii) use templates of the 2-point correlation function to infer robust, model-agnostic constraints on the expansion and growth of structures history of the universe and hence deliver an important cross check of our model assumptions as done in the BOSS and eBOSS surveys. In this talk I will explain how our new ShapeFit approach can bring these two "philosophies" together via an additional 'shape' parameter capturing the broadband slope of the power spectrum. I will present cosmological results from BOSS+eBOSS legacy data using ShapeFit and discuss their implications for the current status. Finally, I will emphasize the importance of model-agnosticism in ongoing surveys such as DESI.

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