

# The Past, Present and Future of Cosmology

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**Abstract:** Our universe is both simple and strange. It is simple because just five parameters, such as the density of dark matter and dark energy, as well as the amplitude of matter fluctuations, describe all cosmological observations. It is strange because we arguably don't understand any of these parameters. In this talk, I will first describe the astounding progress in observational cosmology that has led to the simple 5-parameter model for our universe. I will then explain why most elements of the standard model of cosmology are still mysterious. In particular, I will describe why the model challenges our understanding of fundamental physics on the both the largest and the smallest scales. Finally, I will look into the future and discuss how upcoming observations can help us to understand our simple, but strange universe.