



## The LambdaCDM cosmology: Much more than we expected, but now less than what we want

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The LCDM cosmological model is remarkable: with just 6 parameters it describes the evolution of the Universe from a very early time when all structures were quantum fluctuations on subatomic scales to the present, and it is consistent with a wealth of high-precision data, both laboratory measurements and astronomical observations. However, the foundation of LCDM involves physics beyond the standard model of particle physics: particle dark matter, dark energy and cosmic inflation. Until this 'new physics' is clarified, LCDM is at best incomplete and at worst a phenomenological construct that accommodates the data. I discuss the path forward, which involves both discovery and disruption, some grand challenges and finally the limits of scientific cosmology.