

Cosmology and the Cosmic Microwave Background

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The last decade has been a remarkable time for cosmology. We now have a testable model for the origin and evolution of the universe from its first instants to the present day. The model contains some remarkable components about which we know very little. Baryonic matter accounts for only a few percent of the make-up of the universe, dark matter accounts for roughly a quarter, and the dominant component is the mysterious dark energy which is causing the expansion of the universe to accelerate. The model starts with a period of inflation from quantum fluctuations at extremely high energy and leads eventually to all the splendid structure around us today. Much of the model has been determined from measurements of the cosmic microwave background radiation (CMB). After a brief review of the field, this talk will focus on the newest CMB results and those being pursued to test the model and to investigate the nature of dark energy and inflation.

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