A UniverseNet Cosmology Workshop: Confronting theory with observations

Monday 16 August 2010 - Friday 20 August 2010

Niels Bohr Institute

Scientific Program

Workshop information

This workshop is intended to expose theoretical cosmologists to some of the important observations being made of our universe. The goal is to encourage theorists to think concretely about the questions being raised by these new discoveries and also to acquire a sense of the realistic constraints on theoretical ideas and models that will be possible from the coming generation of cosmological instruments.

Some of the important challenges facing theorists today include identifying the nature of the dark matter, understanding the reason for the apparent recent acceleration in the expansion of the universe, and understanding the origin and the detailed properties of the primordial fluctuations that provided the seeds for all subsequent structures in the universe.

Some of the topics to be explored at this workshop include:

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What are we able to infer about the primordial properties of our universe through observations of the CMB and the large-scale structure?

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Is there any significant departure from a primarily Gaussian pattern in the primordial fluctuations and, if so, what is its origin?

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What do we currently know about the detailed expansion history of our universe?

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What constraints will be possible through future careful measurements of standard candles such as supernovae or a detailed analysis of the weak lensing observations?

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What do current cosmological observations tell us about the properties of the dark matter and what can we hope to learn from future experiments?

This workshop is sponsored by UniverseNet, a Marie Curie Research Training Network.

Additional support has been provided by the Discovery Center and the Niels Bohr International Academy.