



The Galileo Galilei Institute for Theoretical Physics  
Arcetri, Florence



*Galileo Galilei*

# Theoretical Cosmology in the Era of Large Surveys

March 21, 2016 - May 13, 2016

How can we optimally exploit present and future large scale structure surveys to address questions about the nature of the Dark Energy, and to test the Standard Model of Cosmology and the Theory of Gravity on large scales?

In the next decades, we plan to continue the success story of the CMB with observations of CMB polarisation and to go beyond with surveys of the large scale structure of the Universe. The potential of large scale structure surveys is substantial as they deliver three dimensional data sets, i.e. we can observe the large scale structure at many different redshifts. The new generation of observations are already starting with the currently active Dark Energy Survey (DES), and they continue with upcoming data of the SDSS survey and especially with data of the Euclid satellite (to be launched in 2020), the large synoptic survey telescope (LSST) and the Square Kilometer Array (SKA) radio telescope.

The purpose of this meeting is to bring together theoretical and observational cosmologists to take stock of the current state of the field and to look forward to the next generation of surveys.

## Topics:

- Inflation and the Early Universe
- Dark Energy, Dark Matter and Modified Gravity
- Testing General Relativity with LSS surveys
- Large-scale Surveys: observables, forecasts and methodology, from data to theory
- The Cosmic Microwave Background: polarisation and anisotropies

Local organizer Michele Redi

## Organizing Committee:

Luca Amendola (University of Heidelberg)  
Claudia de Rham (Case Western Reserve University)  
Ruth Durrer (University of Geneva)  
Martin Kunz (University of Geneva)  
Giovanni Marozzi (University of Geneva)  
Sabino Matarrese (University of Padova)  
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