

WORKSHOP AND PHD SCHOOL ON INFLATION AND STRING COSMOLOGY 23-27 OCTOBER 2006

Abstract for the PhD School

The turn of the millennium marked the beginning of the era of precision cosmology. Extremely surprisingly our universe is dominated by dark energy, a component of the energy density which has negative pressure. A physical understanding of dark energy is still lacking, and is likely to require a proper quantum theory of gravity. For the first time, cosmological observations are also beginning to provide clues to the initial conditions of the hot Big Bang. Observations of the cosmic microwave background lend strong support to the concept of inflation in which the flatness, homogeneity, and initial density fluctuations of the Universe are direct results of very early quantum effects. The required ultrahigh energies are far beyond those reached in any laboratory, and cosmology will provide the only window on this hidden world over at least the next decade.

The school on inflation and quantum gravity will connect the mathematical questions related to formulating physical theories beyond quantum field theory and general relativity with the cosmological observations which are likely to be the only testing ground for these theories.

Place: Dept. of Mathematical Sciences, University of Aarhus, Building 1531-219, Auditorium D4 for both Workshop and School.

Organizers: Steen Hannestad (sth@phys.au.dk), Martin S. Sloth, and Jørgen Ellegaard Andersen (andersen@imf.au.dk).