

School and workshop: Supercomputing Techniques in Astrophysics

Contributed by Administrator
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An international school and workshop on Supercomputing Techniques in Astrophysics is held at the Universidad Católica, Campus San Joaquín, Santiago, Chile on 19-23 April, 2010.

Astronomy is increasingly becoming a computationally intensive field due to the ever larger datasets delivered by observational efforts to map ever larger volumes of the Universe, and also to provide ever finer details of galaxies and their stellar, gas and dust content. As a result there are two computationally demanding, complementary approaches that need to be performed to uncover new findings and interpret them within a cosmological context:

The processing of the observational data so that it can be used to answer particular problems of cosmology and galaxy formation. This includes computationally intensive statistical tools to be applied to datasets of hundreds of terabytes or even more. The study of the power spectrum of density fluctuations mapped by the galaxies in the largest survey to date, the Sloan Digital Sky Survey, already requires parallel computing in order to be performed. In the near future several new surveys will demand orders of magnitude increase in the available data and therefore in data processing capabilities.

The appropriate construction and interpretation of theoretical models of galaxy formation within a cosmological framework. The simulations involve two general steps. The first one is to include the necessary physics to produce a reliable evolution and required observables; the second is the analysis of outputs which need to be at least as large or detailed as the observational datasets, with information on the underlying properties and complete evolution history across time of galaxies and their components.

For further information please visit the workshop's website.