## **AKPhil 1: Cosmology 1**

Zeit: Dienstag 14:00-15:00

## Raum: KIP SR 3.401

HauptvortragAKPhil 1.1Di 14:00KIP SR 3.401Confirming Inflation?- • CHRISTOPHER SMEENK- Departmentof Philosophy, 321Dodd Hall, 405Hilgard, UCLA, Los Angeles, CA90095-1451

To what degree do observational results support inflationary cosmology? Clearly there has been a great deal of progress in precision cosmology since the introduction of inflation, which opens up the prospect of deducing the inflaton potential from temperature anisotropies in the background radiation. Are we now in a position to make a strong empirical case in favor of inflation? My talk will focus on three obstacles to giving a clear answer to this question. First, because inflation is currently a "paradigm without a theory," it is difficult to specify robust predictions of inflation in general. This is due to disagreement about what constitutes a "natural" model of inflation. Even granting agreement on this issue, some of the predictions of inflation may be sensitive to questionable physical assumptions. Second, the evidential support inflation receives depends in part upon whether its successful predictions are unique. In terms of a Bayesian approach to confirmation theory, the support inflation receives from a given successful prediction depends on the likelihood of the prediction holding true if the theory is false. This is a general problem, but in the case of inflation it is more pressing due to ignorance of the space of alternative theories. Third, does inflation merely "accomodate" observational results by adjusting parameters of the model (the inflaton potential), or does it successfully predict them?