



Contribution ID: 32

Type: **Plenary**

## Time's Arrow in Cosmology

*Wednesday 6 March 2013 14:30 (1 hour)*

The problem of time's arrow arises due to the conflict between the time-reversal invariance of dynamical laws and temporal asymmetry of phenomena. In the late 19th century, Boltzmann proposed to avoid this conflict with speculative cosmological proposals, including the suggestion that the universe began in a low entropy initial state. Contemporary neo-Boltzmannians hold that this idea, called the Past Hypothesis," is essential to solving the problem of time's arrow. I will first review the recent debates in the philosophy of physics literature regarding this view. The second part of the talk turns to inflationary cosmology and other speculative cosmological scenarios. In particular, I consider the apparent conflict between the Past Hypothesis and the idea that inflation works for generic" initial conditions. I then criticize proposals that offer modern versions of another idea originally due to Boltzmann, namely that we should treat the observed universe as a fluctuation from an overall equilibrium state.

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**Session Classification:** Philosophical Perspectives