



Contribution ID: 20

Type: **not specified**

Conceptual Problems in Canonical Quantum Gravity and Cosmology

Tuesday 28 August 2007 11:45 (45 minutes)

Canonical quantization is among the main approaches to quantum gravity. Its main conceptual problems are reviewed in my talk. Most of them are centred around the problem of time: a time parameter is absent in the fundamental equations. I discuss the meaning of time in full quantum gravity and the recovery of semiclassical time as an approximation. This also includes the Hilbert-space problem. I conclude with a discussion of the arrow of time and the quantum-to-classical transition.

Ref.: C. Kiefer, *Quantum Gravity*, second edition
(Oxford University Press 2007).

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Session Classification: Quantum Gravity