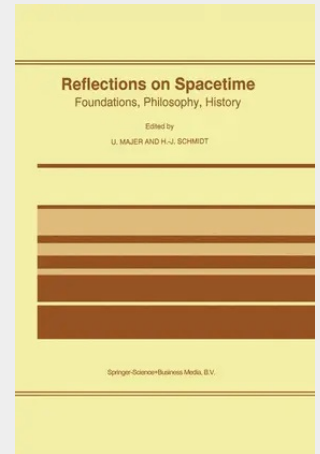


Reflections on Spacetime

Foundations, Philosophy, History

REFLECTIONS ON SPACETIME - FOUNDATIONS, PHILOSOPHY AND HISTORY During the academic year 1992/93, an interdisciplinary research group constituted itself at the Zentrum für interdisziplinäre Forschung (ZiF) in Bielefeld, Germany, under the title 'Semantical Aspects of Spacetime Theories', in which philosophers and physicists worked on topics in the interpretation and history of relativity theory. The present issue consists of contributions resulting from material presented and discussed in the group during the course of that year. The scope of the papers ranges from rather specialised issues arising from general relativity such as the problem of referential indeterminacy, to foundational questions regarding spacetime in the work of Carnap, Weyl and Hilbert. It is well known that the General Theory of Relativity (GTR) admits spacetime models which are 'exotic' in the sense that observers could travel into their own past. This poses a number of problems for the physical interpretation of GTR which are also relevant in the philosophy of spacetime. It is not enough to exclude these exotic models simply by stating that we live in a non-exotic universe, because it might be possible to "operate time machines" by actively changing the topology of the future part of spacetime. In his contribution, Earman first reviews the attempts of physicists to prove "chronology protection theorems" (CPTs) which exclude the operation of time machines under reasonable assumptions.

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