

Space, Time, and Stuff

Frank Arntzenius presents a series of radical new ideas about the structure of space and time. Space, Time, and Stuff is an attempt to show that physics is geometry: that the fundamental structure of the physical world is purely geometrical structure. Along the way, he examines some non-standard views about the structure of spacetime and its inhabitants, including the idea that space and time are pointless, the idea that quantum mechanics is a completely local theory, the idea that antiparticles are just particles travelling back in time, and the idea that time has no structure whatsoever. The main thrust of the book, however, is that there are good reasons to believe that spaces other than spacetime exist, and that it is the existence of these additional spaces that allows one to reduce all of physics to geometry. Philosophy, and metaphysics in particular, plays an important role here: the assumption that the fundamental laws of physics are simple in terms of the fundamental physical properties and relations is pivotal. Without this assumption one gets nowhere. That is to say, when trying to extract the fundamental structure of the world from theories of physics one ignores philosophy at one's peril!

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