

Nähere Informationen / Kontakt:
<mailto:iz1@uni-wuppertal.de>

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Arches and Scaffolds: Building the Cathedral of Quantum Mechanics*

Michel Janssen
(University of Minnesota/ University of Bonn)

I give a brief overview of the development of quantum theory from Planck's work on black-body radiation around 1900 to von Neumann's introduction of Hilbert space in 1927.

This overview is based on Constructing Quantum Mechanics (Oxford, 2019/2023), a book in two volumes, co-authored with Tony Duncan, on the genesis of quantum mechanics. The subtitles of these volumes are The Scaffold: 1900–1923 and The Arch: 1923–1927. As these subtitles suggest, we see the transition from the old quantum theory of Bohr, Sommerfeld and others to the new quantum theory of Heisenberg, Schrödinger and others not as demolishing the old building and erecting a new one on its ruins but as using parts of the old building as the scaffold to build the arch of the new one.

* Based on joint work with Tony Duncan, with drawings by Laurent Taudin

BUW | Campus Griffenberg
Raum O.13.21
Gaußstraße 20
42119 Wuppertal

