1. Record Nr. UNINA9910300420903321 Autore Badino Massimiliano Titolo The Bumpy Road: Max Planck from Radiation Theory to the Quantum (1896-1906) / / by Massimiliano Badino Cham:,: Springer International Publishing:,: Imprint: Springer,, Pubbl/distr/stampa 2015 **ISBN** 3-319-20031-3 Edizione [1st ed. 2015.] Descrizione fisica 1 online resource (123 p.) Collana SpringerBriefs in History of Science and Technology, , 2211-4564 509 Disciplina Soggetti **Physics** History History and Philosophical Foundations of Physics History of Science Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Description based upon print version of record. Note generali Nota di bibliografia Includes bibliographical references at the end of each chapters and index. Nota di contenuto Chapter 1: In the Theoretician's Workshop: Notes for a Historical and Philosophical Analysis of Theories 1 -- Chapter 2: The Problem of Heat Radiation -- Chapter 3: Planck's Theory of Radiation -- Chapter 4: Deconstructing Planck -- Index. This book examines the different areas of knowledge, traditions, and Sommario/riassunto conceptual resources that contributed to the building of Max Planck's theory of radiation. It presents an insightful comparative analysis that not only sheds light upon a fundamental chapter in the history of modern physics, but also enlarges our understanding of how theoreticians work. Coverage offers a deep investigation into the technical aspects behind the theory and extends in time the notion of quantum revolution. It also presents a full-fledged discussion of the combinatorial part of Planck's theory and places emphasis on the epistemological role of mathematical practices. By painstakingly reconstructing both the electromagnetic and the combinatorial part of Planck's black-body theory, the author shows how some apparently merely technical resources, such as the Fourier series, effectively contributed to shape the final form of Planck's theory. For decades,

historians have debated the conditions of possibility of Max Planck's

discovery as a paradigmatic example of scientific revolution. In particular, the use of combinatorics, which eventually paved the way for the introduction of the quantum hypothesis, has remained a puzzle for experts. This book presents a fresh perspective on this important debate that will appeal to historians and philosophers of science.