Record Nr. UNINA9911018653203321 Autore Giliberti Marco **Titolo** Heisenberg's 1925 "Umdeutung" Paper: A Commented Translation from a Physicist's Perspective / / by Marco Giliberti, Luisa Lovisetti Cham:,: Springer Nature Switzerland:,: Imprint: Springer,, 2025 Pubbl/distr/stampa 3-031-96921-9 **ISBN** Edizione [1st ed. 2025.] Descrizione fisica 1 online resource (175 pages) Collana SpringerBriefs in History of Science and Technology, , 2211-4572 Altri autori (Persone) LovisettiLuisa Disciplina 509 Soggetti Physics - History Quantum theory History of Physics and Astronomy Quantum Physics Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Nota di contenuto Historical and physical context -- Introduction to the commented translation -- Heisenberg's paper -- Further comments and observations -- The dawn of a new era. This book presents a meticulously crafted new translation of Werner Sommario/riassunto Heisenberg's ground-breaking 1925 paper, widely regarded as the birth "certificate" of quantum mechanics. The translation remains faithful to the original terminology and is accompanied by a particularly detailed, step-by-step commentary. These annotations are designed not only to clarify the meaning of this complex work for the modern reader but also to illuminate the reasoning behind Heisenberg's choices, offering deep insight into the physical, conceptual, and mathematical foundations of the theory. Great care has been taken to make the calculations as explicit as possible while keeping them concise, ensuring that every essential step is clear without unnecessary complexity. This approach allows readers to grasp the logical flow of Heisenberg's argument while appreciating the elegance of his formulation. Beyond the paper itself, the book situates Heisenberg's work within the broader intellectual landscape of the time, tracing the intense discussions and challenges in physics that led to the birth of

quantum mechanics. It also provides insight into the subsequent

contributions of Born, Jordan, and Heisenberg himself that culminated in the formulation of matrix mechanics. Aimed at readers with a university-level background in quantum mechanics, this book is an invaluable resource for those who wish to delve into the motivations, conceptual developments, and intricate reasoning that led Heisenberg to construct the new quantum theory in such a unique and revolutionary way.