

## SYHQ 2: History of Quantum Mechanics II: Foundation, Dissemination, Politicization

Time: Monday 14:00–15:30

Location: ZHG010

**Invited Talk** SYHQ 2.1 Mon 14:00 ZHG010  
**Model and Target: Von Neumann’s Mathematische Grundlagen** — ●MICHAEL STÖLTZNER — University of South Carolina, Columbia, SC, USA

Based on joint work with Hilbert and Nordheim in 1927 and amended with a detailed discussion of measurement, von Neumann’s 1932 ‘Mathematische Grundlagen der Quantenmechanik’ was generally considered as the definitive formulation of the theory in rigorous mathematical terms. Especially the no-hidden-variable theorem was often read as a philosophically motivated finality claim. Accordingly, it became attacked by proponents of alternative interpretations, in the case of John Bell even together with mathematical physics as such. But this misunderstands the place that the book had in von Neumann’s own work – he quickly moved on from Hilbert spaces to operator algebras – and in his increasingly opportunist understanding of mathematics. Understanding the context of von Neumann’s book, including why he stressed the uniqueness and non-extendibility of quantum mechanics, helps to understand the multiple roles his work would play shortly after his death when a renaissance of mathematical physics took place in quantum field theory, and eventually also in atomic physics.

**Invited Talk** SYHQ 2.2 Mon 14:30 ZHG010  
**Tracing the dissemination of quantum mechanics: A comparative approach** — ●ROBERTO LALLI — Politecnico di Torino, Turin, Italy

The dissemination of quantum mechanics presents significant methodological challenges to historians of science. Exploring how quantum knowledge circulated after 1925, scholars have often adopted case study approaches tailored to specific artifacts, sociocultural settings, or conceptual debates, such as foundational controversies. These diverse perspectives reflect the complexity of tracing knowledge transfer, as the choice of sources\*textbooks, conference proceedings, papers, letters, or other materials\*critically shapes the narratives constructed. In this talk, I review the methodologies used to study the dissemination of quantum physics and then adopt a comparative approach, focusing on the roles of industrial laboratories, international institutions (such as IUPAP), as well as a network analysis of scientific publications. By analyzing these distinct yet interconnected contexts, I aim to identify patterns and dependencies in the circulation of quantum knowledge, shedding light on the broader historiographical implications of studying its diffusion across scientific, industrial, and institutional landscapes.

**Invited Talk** SYHQ 2.3 Mon 15:00 ZHG010  
**Quantum Mechanics and ‘Aryan Physics’** — ●MARK WALKER — Dept. of History, Union College, Schenectady, NY USA

This talk will examine the political and ideological attacks made by the Nobel laureate Johannes Stark against quantum mechanics and the scientists associated with it, both during the Weimar Republic and the Third Reich. I will also discuss how established scientists like Werner Heisenberg fought back.