PHYSIKALISCHES KOLLOQUIUM

Sommersemester 2025

Das Kolloquium findet (soweit nicht anders angegeben) **jeweils montags um 14:15 Uhr in Präsenz im Röntgen-Hörsaal** des Physikalischen Instituts, Hubland Campus Süd, Universität Würzburg **und online via Zoom statt**.
Zugangsdaten siehe https://www.physik.uni-wuerzburg.de/aktuelles/veranstaltungen-aus-der-physik/physikalisches-kolloquium/

28.04.2025

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„Thus the proof runs in a circle" - Grete Hermann and her refutation of "no hidden variables" arguments

Abstract

In 1935, Grete Hermann published a long article about the philosophical foundations of quantum theory in an almost unknown philosophical journal, which is still worth reading today. This article became particularly famous because it contained a refusal of a theorem of John von Neumann according to which any extension of quantum theory by hidden variables in order to explain the apparent indeterminism is impossible. Until today some of the questions concerning this refusal are still under debate: To which extend was John von Neumann aware of how restrictive his assumptions were? To which extend is Grete Hermann's claim justified that von Neumann's proof is circular? And in particular, to which extend was Grete Hermann really convinced that such an extension of quantum theory is not necessary in order to save the causality principle, which is one of the conclusions of her article?

In my talk I will briefly summarize the main arguments of Grete Hermann, but I also want to give a brief account of the history related to two of her articles: the (by now) famous one from 1935, and a remarkable manuscript from 1933, which was long-lost for many years and reappeared only a few years ago.

Für die Dozentinnen bzw. Dozenten der Fakultät

Prof. Dr. Hankiewicz, Prof. Dr. Hinkov, Dr. Meyer, Dr. Feichtner, Hr. Baumbach