

Colloquium Notice

Arkady Plotnitsky

Purdue University

Complementarity and quantum causality: From Bohr to quantum information theory

Bohr never explained what he specifically meant, apart from the fact that complementarity reflects the fundamental difference between quantum physics and classical physics, based on the classical concepts of causality and determinism, closely connected to each other. This talk will introduce the concept of “quantum causality,” which divorces the idea of causality from determinism and explains why one may indeed be see complementarity in this way. This concept, however, is more general and allows one to offer a new perspective on the nature of quantum phenomena and the role of temporality and the arrow of time there, also in connection with quantum information theory, where similar conceptions of causality have been introduced in recent years in the work of C. Brukner, L. Hardy, and G. M. D’Ariano.

Monday

September 16, 2019

Starts at 12:15 PM

Coffee at 12:00 PM

Physics Conference Room, SB B326