



CRC 1227
Designed Quantum States of Matter



GASTVORTRAG

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Leibniz Universität Hannover
Welfengarten 1, 30167 Hannover
Hauptgebäude (1101),
Seminarraum am Institut für Quantenoptik
Raum D326

Vortragender: Prof. Dr. Ralf Menzel,
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(Guest of Prof. Dr. Wolfgang Ertmer)

Thema: Complementarity, Modes and Vacuum Fields in Quantum Optics

Complementarity is one of the most fundamental and important principles of quantum physics. It was mentioned first by Niels Bohr as a consequence of the uncertainty of certain pairs of quantum physical parameters. But complementarity is also a consequence of the wave-particle-duality. A new set of experiments using spontaneous parametric down conversion allows the detailed investigation of the complementarity principle in quantum optics. It is shown that complementarity in both aspects is a consequence of the (classical) modes of the photons selected in the measuring process and their properties are determined by the physics of the vacuum fields.

**Zu dieser Veranstaltung sind alle DQ-mat-Mitglieder und
alle Interessierten herzlich eingeladen.**