Abstract
The fundamental question whether quantum theory might require quaternionic rather than complex Hilbert spaces has remained open since the early days of quantum mechanics. Several generalisations of quantum mechanics to quaternions exist, that lead to predictions that are fully consistent with observations. However, they suffer from some subtleties. The general attitude to quaternionic quantum theories seems to be that there is little need to investigate a flawed theory that has failed to produce notable new results.

An apparently unrelated issue concerns the possible existence of extra space-time dimensions. In String theory ten or more dimensions are often asserted, and six dimensions are popular in toy models. Critics argue that there are no experimental verifications available. Various indirect evidences have been sought in high energy experiments at substantial costs, hitherto without conclusive results.

In this talk I argue that these two issues are in fact closely connected. I will discuss the possibility to investigate quaternionic quantum dynamics in the quest for experimentally accessible effects of extra dimensions at low energies. This talk is based on joint work with Dorje Brody (Brunel University).

Raum: 46-576
Zeit: 15:30 Uhr

Gäste sind herzlich willkommen.