



Leibniz
Universität
Hannover

Oberseminar Analysis und Theoretische Physik

Prof. Dr. Reinhard F. Werner

Leibniz Universität Hannover

Incomplete quantum dynamics

Normally, the time evolution in quantum mechanics is given by a unitary one-parameter group. In this talk about an ongoing project I am pursuing a natural generalization in which a particle may escape to infinity in finite time. A prototype is a classical particle in one dimension with an x^3 -Potential. This confirms the intuitive connection between classical incompleteness and selfadjointness. From the classical analogy it is natural to modify the dynamics to a contraction semigroup. This can either be obtained by the dissipative branch of von Neumann's extension theory, or by a Trotter limit in the weak operator topology, by which the sum of selfadjoint operators may sometimes be well-defined, but fail to be selfadjoint. For the cubic potential, an approach based on Nelson's regularization of path integrals yields a specific contraction semigroup.

**Dienstag, 10.1.2023, 15:00 Uhr, Raum c311
Hauptgebäude der Leibniz Universität**

Dazu laden herzlich ein:

Prof. Dr. Wolfram Bauer, Prof. Dr. Joachim Escher, Prof. Dr. Johannes Lankeit,
Prof. Dr. Elmar Schrohe, Prof. Dr. Christoph Walker