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Title: "Quantum Dynamics of Systems Under Repeated Observation"

Abstract:
After a short review of some puzzling features of QM I will study the effective quantum dynamics of systems under repeated observation; more specifically systems interacting with a chain of independent probes, which, afterwards, are subject to a projective measurement and are then lost. This leads to a theory of indirect measurements of time-independent quantities (non-demolition measurements). Subsequently, a theory of indirect weak measurements of time-dependent quantities is outlined, and a new family of diffusion processes (quantum jump processes) is described. To conclude, some open problems are described.