CLASSICAL/QUANTUM CORRESPONDENCE IN LINDBLAD EVOLUTION

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We show that for the Lindblad evolution defined using quadratically growing classical Hamiltonians and linearly growing classical jump functions (quantized into jump operators assumed to satisfy certain ellipticity conditions and modeling interaction with a larger system), the evolution of a quantum observable remains close to the classical Fokker--Planck evolution in the Hilbert--Schmidt norm for times vastly exceeding the Ehrenfest time (the limit of such agreement with no jump operators). The time scale is the same as in two recent papers by Hernández--Ranard--Riedel but the statement and methods are different. The talk is based on joint work with J Galkowski and numerical results obtained jointly with J Galkowski and Z Huang.