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Scaling in parameter dependence of decoherence of quantum systems far from their classically chaotic counterparts ARJENDU PATTANAYAK, Carleton College, ARNALDO GAMMAL, University of Sao Paulo — The behavior of the entropy for an open quantum system with a classically chaotic limit has been studied in some detail. It had been previously argued that the entropy production rate is (a) independent of \hbar and (b) independent of D , the parameter denoting coupling to the environment and (c) equal to the sum of generalized Lyapunov exponents, modulo concerns about being 'near classical' and 'for D large enough'. However, there is little concrete evidence about this. We present results going well beyond earlier work on these issues. In particular, we consider how these results are altered by changing \hbar as well as D , and show that there is a distinct transition from classical to quantum behavior in the entropy production rate, and that this transition depends on the composite parameter \hbar^2/D

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