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Title: Random-like properties of chaotic forcing

Abstract: We prove that skew systems with a sufficiently expanding base have “approximate” statistical properties similar to random ergodic Markov chains. For example, they exhibit approximate exponential decay of correlations, meaning that the exponential rate is observed modulo a controlled error. The fiber maps are only assumed to be Lipschitz regular and to depend on the base in a way that guarantees diffusive behaviour on the vertical component. The assumptions do not imply an hyperbolic picture and one cannot rely on the spectral properties of the transfer operators involved. The approximate nature of the result is the inevitable price one pays for having so mild assumptions on the dynamics on the vertical component. The error in the approximation is shown to go to zero when the expansion of the base tends to infinity.