

# Central Limit Behavior in Low-dimensional Dynamical Systems

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The central limit behavior of dynamical systems is a very intriguing area of research interest [1,2]. Although it is evident that the iterates of a deterministic dynamical system can never be completely independent, it is still possible to prove standard central limit theorems for such systems when the chaotic region is discussed. On the other hand, if critical points like the chaos threshold are considered, standard theorems fail and some kind of generalization is needed. These ideas have recently been investigated in the study of the z-logistic map [3] and also of the generalized Gauss map [4].

References:

- [1] U. Tirnakli, C. Beck, and C. Tsallis, "Central limit behavior of deterministic dynamical systems", Phys. Rev. E 75 (2007) 040106R.
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- [3] A.A. Saberi, U. Tirnakli and C. Tsallis, "Central limit behavior at the edge of chaos in the z-logistic map", Phys. Rev. E 112 (2025) 064209.
- [4] C. Beck, U. Tirnakli and C. Tsallis, "Generalization of the Gauss map: A jump into chaos with universal features", Phys. Rev. E 110 (2024) 064213.