

## An Improved q-Deformed Logistic Map and its Implications

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**Abstract:** In this paper we show that the q-deformed Logistic map proposed by Banerjee and Parthasarathy [1] is actually topologically conjugate to the canonical Logistic map and therefore there is no dynamical changes by this q-deformation. We propose a correction on this q-deformed scheme applied on Logistic map and describe the dynamical changes. We illustrate the Parrondo's paradox by assuming chaotic region as the gain. Further, we compute the topological entropy in the parameter plane and show the existence of Li-Yorke chaos. Finally we show that in the neighbourhood of particular parameter value, q-Logistic map has stochastically stable chaos.

**Keywords:** q-Deformed Logistic map, Heine deformation on nonlinear map, Topological entropy, Stochastically stable chaos.

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