The Iterations of Tent Maps

YuChen, Yang

In this paper, we focus on the dynamical behaviors of the non-monotone points and the periodic points of the tent mappings under iteration. We first discuss the variation of the number and location of the non-monotone points of two-parameter tent mappings with the increase of the number of iterations. Based on this discussion, we also prove that when the vertices are below the diagonal, the number of non-monotone points of tent mappings will remain the same even if the number of iterations is increasing, and the convergence rate of the vertices is also discussed. As for the case of vertices above the diagonal, we prove that when the number of iterations tends to infinity, the number of non-monotone points also tends to infinity, and the growth rules of the number of non-monotone points in different parameter ranges are further discussed. Furthermore, for the situation of vertices above the diagonal, we consider the number and distribution of the periodic points of the tent mappings under different parameters.

Awards Won: