

一維類神經網路的 Snap-Back Repellers 與混沌行波

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摘 要

在 1998 年，陳、許和周等人[6]，在 Marotto 的文章中[25]，找到一個錯誤。他們指出， F 有一個擴張的固定點 z ，並不保證， F 在以 r 為半徑 z 為中心的球中是擴張。後來有些論文(見，[6]、[23]與[24])是在解決這個錯誤，可是當中都存在一些問題。其中一個問題是，他們只給了 F 在"局部"是擴張的條件。在這篇論文中，我們給一足夠的條件，使得 F 是 "大域"擴張。其次，是給個比較完整的 snap-back repeller 定義。最後，我們使用這些結果，證明在離散時間一維類神經網路(CNNs)中有時間往後的混沌行波存在。

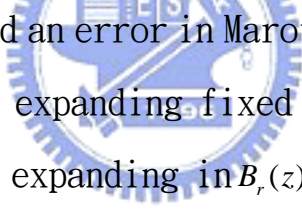
Snap-Back Repellers And Chaotic Traveling Waves In One-Dimensional Cellular Neural Networks

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ABSTRACT



In 1998, Chen et al. , [6] found an error in Marotto's paper [25]. The problem is that the existence of an expanding fixed point z of a map F does not necessarily imply that F is expanding in $B_r(z)$, the ball of radius r with center at z . Subsequent efforts (see e. g. , [6], [23]-[24].) in fixing the problem all have some discrepancies. One of the problems is that they only give conditions for which F is expanding "locally". In this thesis, we give a sufficient condition so that F is "globally" expanding. This, in turn, gives more satisfying definitions of a snap-back repeller. We then use those results to show the existence of chaotic backward traveling waves in a discrete time analogy of one-dimensional Cellular Neural Networks (CNNs).