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Networks and interval maps

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Abstract

The relation between interval map dynamics and digraphs is well known. The digraphs are built using partitions of the interval which supports a given map. Taking this relation as a starting point we introduce a systematic correspondence between networks and a certain class of interval maps. This correspondence can be seen as a coordinate system for networks. This approach has two perspectives: On one hand, methods established for network theory can be used for the study of certain characteristics of interval map dynamics. On the other hand, associating an interval map to a given network we may obtain a characterization of the network through the topological invariants of the map.

Keywords: Dynamical system, iterated maps, graphs, topological invariants.

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