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Rotation sets for graph maps of degree 1

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(joint work with S. Ruette)

For a continuous map on a topological graph containing a loop S it is possible to define the degree (with respect to the loop S) and, for a map of degree 1, rotation numbers. We study the rotation set of these maps and the periods of periodic points having a given rotation number. We show that, if the graph has a single loop S then the set of rotation numbers of points in S has some properties similar to the rotation set of a circle map; in particular it is a compact interval and for every rational α in this interval there exists a periodic point of rotation number α.

For a special class of maps called combed maps, the rotation set displays the same nice properties as the continuous degree one circle maps.