

On circle maps with a flat interval and Cherry flows.

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Abstract:

Cherry flows are smooth flows on the bi-dimensional torus with two singularities. Having a rich behaviour they have been attracting a lot of research attention over the years. The first return map is one of key tools in their studies. It is a C^2 weakly order preserving circle map with a flat interval.

In my talk, I will survey recent developments in the comprehension of the dynamics generated by such maps. I will particularly focus on functions with unbounded rotation numbers. Following that, I will deduce metric, ergodic and topological properties of Cherry flows which led to resolution of some conjectures.