Global Dynamics for Symmetric Planar Maps

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We consider sufficient conditions to determine the global dynamics for equivariant maps of the plane with a unique fixed point which is also hyperbolic. When the map is equivariant under the action of a compact Lie group, it is possible to describe the local dynamics and – from this – also the global dynamics. In particular, if the group contains a reflection, there is a line invariant by the map. This allows us to use results based on the theory of free homeomorphisms to describe the global dynamical behaviour. In the absence of reflections, we use equivariant examples to show that global dynamics may not follow from local dynamics near the unique fixed point. This talk is based on the papers [1] and [2].

References

[1] B. Alarcón, S.B.S.D. Castro and I.S. Labouriau, *Global Dynamics for Symmetric Planar Maps*, Preprint CMUP 2012–12.
(http://cmup.fc.up.pt/cmup/v2/frames/publications.htm)

[2] B. Alarcón, S.B.S.D Castro and I. Labouriau, *A $\mathbf{Z}_n$-symmetric local but not global attractor*, Preprint CMUP 2011–34.
(http://cmup.fc.up.pt/cmup/v2/frames/publications.htm)