Tangential homoclinic points locus of the Lozi maps

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We consider the dynamics of the two-parameter Lozi family of planar homeomorphisms, more precisely, the relationship between the stable and unstable manifold of the hyperbolic fixed point X of that family in the first quadrant together with their intersections, homoclinic points. We present curves in the parameter space which represent the border of existence of homoclinic points for X and determine all possible homoclinic points in the border case. Within the determined border, we introduce a specific region in the parameter space for which the period-two orbit is attracting and there are no homoclinic points for X. In this region we show that the Lozi map has zero topological entropy, expanding the results in [1].

This is joint work with Michał Misiurewicz (IUPUI, Indianapolis) and Sonja Štimac (University of Zagreb, Croatia).

References

[1] I. B. Yildiz, *Monotonicity of the Lozi family and the zero entropy locus*, Nonlinearity **24** (2011), 1613-1628