

Fixed points in the plane and minimizers of the action functional

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A fixed point of a homeomorphism in the plane is called stable if it has neighbourhoods which are arbitrarily small and invariant under the homeomorphism. These fixed points enjoy certain properties which are only valid in two dimensions. I will talk about some of these properties and also about a problem which was the initial motivation. It is a problem lying between Mechanics and Calculus of Variations and can be stated as follows: to show that the periodic solutions which are obtained by minimization of the action are unstable in the Lyapunov sense.