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Deformations of spaces of smooth functions on 2–torus

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The idea of deformation of geometric objects was proposed by Henri Poincaré. This approach proved to be very powerful because it showed that there is a “flexible” connection between different properties of “rigid” objects that considered in geometry.

A key objects in the theory of deformation (homotopy) play automorphism groups of “geometric structures” on manifolds. For instance, Lie groups occur naturally as groups of motions of Euclidean space, groups of diffeomorphisms the study of smooth manifolds.

The report will represent some results about the deformation properties of the orbits of smooth functions on the 2–torus with respect to the action of its diffeomorphisms.