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Homotopy invariants in bifurcation theory for dynamical systems

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In the talk we will shortly discuss two approaches to bifurcation theory. The first one is based on the index bundle from topological K-theory. On illustration, we will present an application to bifurcation of homoclinic solutions of discrete non-autonomous dynamical systems bifurcating from the trivial branch of stationary solutions.
The second approach is based on the cohomological index of Fuller type which extends the notion of the classical fixed point index for single-valued maps. In particular, we will present how it can be applied to study bifurcation of periodic orbits of dynamical systems generated by differential equations without uniqueness of solutions.

New open problems will be also discussed.

References

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