PARIS LODRON UNIVERSITÄT SALZBURG | Mathematik

Gastvortrag

Donnerstag, 30. Juni 2022
Uhrzeit: 13:00 Uhr
HS 415

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Variational approach to the Arnold invariants and an application of the principle of symmetric criticality

Abstract:

Planar closed immersed curves can be classified by the Whitney-Graustein theorem which states that the space of immersions of the circle into the plane with the same winding number is connected. Arnold defined three invariants that are locally constant on generic immersions, i.e. curves where all self-intersections are transverse double points.

We prove existence of minimizers of a truncated version of the tangent-point energy for curves with fixed Arnold invariants and fixed winding number. By sending the truncation parameter to zero, we obtain a C^1-curve as the limit of a sequence of minimizers, and we investigate properties of that limit curve.

An application of the principle of symmetric criticality by Palais yields the existence of point symmetric curves in the class of figure-eight shaped curves as critical points of the considered energy.

Eingeladen von Simon Blatt