



Gastvortrag

Dienstag, 10. Mai 2023

Uhrzeit: 10:00 Uhr

Seminarraum I

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Working towards a Mountain-Pass theorem for geometric energies

Abstract:

A longstanding task in geometric knot theory lies in the study of the global energy landscape of certain knot energies. This is intimately connected to the study of critical points and sublevel sets of said functional.

For problems that are geometric by nature, however, most standard approaches in critical point theory fail to be applicable. This stems from the fact that geometric functionals mostly do not satisfy the famous Palais-Smale condition: Indeed, they are usually invariant under reparametrizations or other non-compact symmetries.

We prove a version of the Mountain-Pass theorem suitable for geometric energies, by introducing a much weaker form of the Palais-Smale Condition and at the same time posing stronger assumptions on the considered energy functional. The main ingredients of the proof are a modified version of the quantitative deformation lemma of Brézis and Nirenberg and the introduction of suitable reparametrization invariant fractional Finsler-Sobolev metrics.