RUHR-UNIVERSITÄT BOCHUM

FAKULTÄT FÜR MATHEMATIK

RUB

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Oberseminar Dynamische Systeme

Riemannian distance and symplectic embeddings in cotangent bundle

Dienstag, 20. Juni 2023
16:15 Uhr – Raum IA 1/181

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Abstract:

In the talk, I will define a distance-like function d_W on the zero section N of the cotangent bundle T*N. The function d_W is defined using certain symplectic embeddings from the standard ball to the open neighborhood W of the zero section. Using such a function, one can define a length structure on the zero section. The main result of the talk is that in the case when W is equal to the unit disc-cotangent bundle with respect to some Riemannian metric g, the length structure is equal to the Riemannian length. In the process of explaining the proof I will present some results related to the relative type of Gromov width in T*N, and I will give the proof of the strong Viterbo conjecture for the product of two Lagrangian discs in R^{2n}. In the joint work with Dylan Cant, we were able to give a sharper bound on the relative Gromov width, under some constraints, using bordism classes in the free loop space. We also prove the existence of periodic orbits for a large class of Hamiltonians using the same technic. Time permitting, I will present how to use bordism classes to prove these results.

Guests are very welcome!