

Kolloquium des Departments Mathematik/Informatik

am 08.12.2021, 16:30 Uhr im Hörsaal des Departments Mathematik/Informatik

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Vortragstitel:

Spectrum and abnormal geodesics in sub-Riemannian geometry

Zusammenfassung:

Sub-Riemannian (sR) geometry is the study of bracket generating metric-distributions inside the tangent space of a manifold and a natural generalization of Riemannian geometry. In this talk we will begin by explaining some motivation for the subject from problems in classical and quantum mechanics.

We will then highlight some novel features of sR geometry. These include the notion Hausdorff dimension, which is strictly bigger than the topological dimension, given by the volume growth rate of metric balls. Another includes the phenomenon of abnormal geodesics which do not satisfy any variational equations.

Finally we will describe some semi-classical results, related to the quantum-classical correspondence, in the sub-Riemannian context, and we will indicate how the novel features of Hausdorff dimension and abnormal geodesics play a role in them.