

# 3D Optimal control problems constrained on surfaces

*mardi 9 mai 2023 11:00 (45 minutes)*

In this talk I consider a surface embedded in a 3D contact sub-Riemannian manifold (i.e., an optimal control problem in dimension 3 with 2 controls which is linear w.r.t. the controls and with quadratic cost; we will also make a natural controllability assumption). Such a surface inherits a field of direction (with norm) from the ambient space. This field of directions is singular at characteristic points (i.e., where the surface is tangent to the contact distribution). Generically singularities are either of elliptic type (nodes and foci) or of hyperbolic type (saddles). In this talk we will study when the normed field of directions permits to give to the surface the structure of metric space (of SNCF type). We will also study how to define the heat and the Schroedinger equation on such a structure and if the singular points are accessible or not by the evolution.

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