

## **Curvature for affine optimal control problems**

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In this talk I will present a notion of curvature for an affine optimal control problem that is related with the asymptotic of the second derivative of the cost along a minimizing trajectory.

Moreover I will discuss some applications of this notion for drift-less systems with quadratic costs, i.e. control systems associated with the geodesic problem in (sub-)Riemannian geometry. In particular we will discuss an asymptotic formula for the sub-Laplacian of the distance squared along a geodesic and the notion of geodesic dimension. (Joint work with A. Agrachev and L. Rizzi)