

Trivializable subriemannian structures and spectral analysis of associated operators

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Abstract. In this talk we first recall the notion of a subriemannian manifold M and we provide various examples. Under some additional assumptions it is known that a subriemannian structure induces a hypo-elliptic non-negative operator Δ^{sub} which is called sub-Laplacian. In the cases where M is a sphere (of a certain dimension) or a general compact two step nilmanifold we study the heat kernel and the spectrum of Δ^{sub} . The results are compared with the heat kernel and the spectrum of the Laplacian on M . Similar to the case of Riemannian manifolds to which the Beltrami-Laplace operator is assigned to, one can study the relation between the subriemannian geometry of M and spectral invariants with respect to Δ^{sub} . This presentation is based on a joint work with K. Furutani (Tokyo University of Science, Japan) and C. Iwasaki (University of Hyogo, Japan).

References

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