

Sub-Laplacian Comparison theorems on totally geodesic Riemannian Foliations

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Abstract. We develop a variational theory of geodesics for the canonical variation of the metric of a totally geodesic foliation. As a consequence, we obtain comparison theorems for the horizontal and vertical Laplacians. In the case of Sasakian foliations, or more generally H -type foliations, we show that a sharp sub-Laplacian comparison theorem for the sub-Riemannian distance may be obtained as a limit of sub-Laplacian comparison theorems for the Riemannian distances approximations. This is joint work with E. Grong, K. Kuwada and A. Thalmaier.