1052-35-257 **Fabrice Baudoin*** (`fbaudoin@purdue.edu`), Department of Mathematics, 150 North Grant Street, West Lafayette, IN 47906, and **Nicola Garofalo**, Department of Mathematics, 150 North Grant Street, West Lafayette, IN 47906. *Generalized Bochner formulas and Ricci lower bounds for sub-Riemannian manifolds of rank two.*

We define and study a new class of rank two sub-Riemannian manifolds encompassing as a particular case Riemannian manifolds, CR manifolds with vanishing Webster-Tanaka torsion and orthonormal bundles over Riemannian manifolds. These manifolds admit a canonical horizontal connection and a canonical sublaplacian. We construct on these manifolds an analogue of the Riemannian Ricci tensor and show Bochner's type formulas for the sublaplacian. As a consequence, it is possible to formulate on these spaces a sub-Riemannian analogue of the so-called curvature dimension inequality. Sub-Riemannian manifolds for which this inequality is satisfied are shown to share many common properties with Riemannian manifolds whose Ricci curvature is bounded from below. (Received August 29, 2009)

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