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**Luca Capogna, Scott Pauls and Jeremy T Tyson\*** (tyson@math.uiuc.edu), 1409 West Green Street, Urbana, IL 61801. *Convexity and the horizontal second fundamental form for graphs in Carnot groups*. Preliminary report.

Let  $\mathbb{G}$  be a Carnot (nilpotent stratified Lie) group. We characterize weakly convex functions (in the sense of Danielli-Garofalo-Nhieu or Lu-Manfredi-Stroffolini) in terms of positive definiteness of the horizontal second fundamental form of their graphs in  $\mathbb{G} \times \mathbb{R}$ . This is joint work with Luca Capogna and Scott Pauls. (Received February 14, 2006)