1057-53-311   **Scott Pauls*** (`scott.pauls@dartmouth.edu`), 6188 Kemeny Hall, Hanover, NH 03755. *Minimal surfaces in sub-Riemannian spaces: nonsmooth solutions and their consequences.*

Numerous researchers have made substantial progress in the last decade in understanding and describing the properties of area minimizing surfaces in the sub-Riemannian setting. In contrast to the classical case, a growing body of this work is devoted such surfaces with low regularity. In this talk, we will discuss some of the known examples and their properties as well as some new examples in the setting of the rototranslation group.

Via the Citti-Sarti model of the primary visual cortex, these examples have a direct link to neural processes of contour completion and disocclusion. We will discuss some potential applications in this direction. (Received January 25, 2010)