1050-22-168   **Piotr Hajlasz*** (`hajlasz@pitt.edu`), University of Pittsburgh, Department of Mathemtics, 301 Thackeray Hall, Pittsburgh, PA 15260, and **Jeremy T. Tyson**. *Highly regular surjections between Carnot groups.* Preliminary report.

In the talk I will discuss results concerning sufficient conditions for the existence of highly regular Peano cubes which are surjective mappings from a cube onto a metric space. By high regularity we mean Holder continuity, Sobolev regularity, Lipschitz continuity or even higher order smoothness. In particular it will be shown that there is a C^1 horizontal surjective mapping from R^5 onto the Heisenberg group. The result generalizes also to the case of smooth surjective mappings between general Carnot groups. (Received March 03, 2009)