Title: C^m Whitney Extension and Lusin Approximation for Horizontal Curves in the Heisenberg Group

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Abstract: The classical Whitney extension theorem characterizes when a mapping from a subset of $\mathbb{R}^p$ into $\mathbb{R}^q$ can be extended to a C^m mapping defined on the whole of $\mathbb{R}^p$. This has numerous applications, for instance in approximating rough curves by smoother ones. We describe recent work extending these ideas to mappings from compact subsets of $\mathbb{R}$ into the Heisenberg group. In this case the extension has constrained geometry, namely it must be a horizontal curve. Based on joint work with Marco Capolli, Andrea Pinamonti, and Scott Zimmerman.