1121-30-183 **Alex D. Austin*** (aaustin@math.ucla.edu) and **Jeremy T. Tyson** (tyson@math.uiuc.edu).
A new proof of a Liouville-type theorem for the Heisenberg group. Preliminary report.

Previous methods for establishing that a 1-quasiconformal mapping of a domain in the Heisenberg group, $\mathbb{H}$, is C^∞ smooth, and so the restriction of the action of an element of $SU(1,2)$, have relied on results in non-linear PDE (Capogna, 1997), or regularity results for a holomorphic extension of the mapping, treating $\mathbb{H}$ as the boundary of a strongly pseudoconvex domain in $\mathbb{C}^2$ (Korányi and Reimann 1985, Tang 1996).

We present a new proof that C^2 smooth 1-quasiconformal mappings are C^∞ smooth, drawing on elements of the theory of quasiconformal flows, as developed in $\mathbb{H}$ by Korányi and Reimann. We rely only on the linear PDE theory, specifically the hypoellipticity of the Folland-Stein operators. All computations take place in $\mathbb{H}$ itself, and are of an elementary nature. This approach was inspired by work, in the Euclidean setting, of Zhuomin Liu (2013), who in turn was generalizing a method of Sarvas (1979). (Received July 18, 2016)