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**Corey Shanbrom\*** (cshanbro@ucsc.edu), Department of Mathematics, UC Santa Cruz, 1156 High St, Santa Cruz, CA 95064. *The Kepler Problem on the Heisenberg Group*. Preliminary report.

The Kepler problem is among the oldest and most fundamental problems in mechanics. It has been studied in curved geometries, such as the sphere and hyperbolic plane. Here, we formulate the problem on the Heisenberg group, the simplest sub-Riemannian manifold. Key to this formulation is a 1973 result of Folland, who found the fundamental solution to the Heisenberg sub-Laplacian. We will discuss the geometry of this space and present partial results and first steps towards a solution to the Kepler-Heisenberg problem. This is joint work with Richard Montgomery. (Received September 12, 2012)