1014-14-732 **Friedrich Knop*** (knop@math.rutgers.edu). *The geometry of affine Hamiltonian varieties.* Preliminary report.

Let G be a connected reductive group acting on a smooth affine variety X. We assume that X is Hamiltonian, i.e., X is equipped with a G-invariant symplectic structure and a moment map $m : X \to \mathfrak{g}^*$. The invariant moment map is the induced morphism $m^G : X \to \mathfrak{g}^*/\!\!/G = \mathfrak{t}^*/W$. Our main result is that the invariant moment map is always equidimensional. Moreover, a certain modification of it is flat. The most important case is when X is multiplity free in the Hamiltonian sense. Then we show that the categorical quotient $X/\!\!/G$ is "almost" smooth. (Received September 23, 2005)