1135-53-2515 **Casey Blacker*** (cblacker@math.ucsb.edu), Department of Mathematics, South Hall, Room 6607, University of California, Santa Barbara, CA 93106. *The Moduli Space of Flat Connections over Higher Dimensional Manifolds.* Preliminary report.

While the moduli space $\mathcal{M}_G(\Sigma)$ of flat connections on a G-principal bundle over a surface Σ has been extensively studied, the case of a higher dimensional base M remains largely unexplored. Given a Lefschetz symplectic form on M, there is an induced symplectic structure on the moduli space $\mathcal{M}_G(M)$. We will show that, under the action of the gauge group, $\mathcal{M}_G(M)$ is a generalized symplectic quotient of the space of all G-connections over M, endowed with a natural vector-valued symplectic form. For special cases of M and G, we also obtain a description of the topology of $\mathcal{M}_G(M)$, as well as an analytic expression for the symplectic volume. (Received September 26, 2017)