1067-58-1518   **B. Ntatin*** (`ntatinb@apsu.edu`), Department of Mathematics, Austin Peay State University, Clarksville, TN 37044. *Definition of the Cycle Space of Orbits of Semi-simple Lie Groups acting on Flag Manifolds.*

Actions of Lie groups on manifolds normally give rise to induced actions on the parameter spaces of certain geometric objects related to the manifolds in question. For instance, from the canonical representation of $SL_n(\mathbb{R})$ on $\mathbb{C}^n$, one obtains actions on the parameter spaces of linear subspaces of $\mathbb{C}^n$, that is, Grassmannians $\mathbb{G}r_k(\mathbb{C}^n)$ of k-dimensional subspaces of $\mathbb{C}^n$, flag manifolds $\mathbb{F}_{1,2,\ldots,k}(\mathbb{C}^n)$ and so on. These in turn give rise to new representations on associated spaces of functions, sections of line bundles, differential forms among others. In this talk we will give a definition of the parameter space of certain nonlinear geometric objects (cycles) in the natural setting of group action. Although the objects considered are quite concrete, and the ideas could be generalized, we will only consider low-dimensional examples. (Received September 21, 2010)