1086-VL-2356 **Eugene S. Li*** (eugene.li@montgomerycollege.edu), 51 Mannakee St., Dept. of Physics, Engineering and Geoscience, Montgomery College, Rockville, MD 20850, and **Gerald Katzin** (katzin@mindspring.com), Dept. of Physics, NC State University, 2401 Stinson Drive, Box 8202, Raleigh, NC 27695. *Applying the Role of Differential Identities as an Efficient Tool for Understanding Symmetries and Conservation Laws in Dynamical Systems.* Preliminary report.

The role of differential identities in analyzing the connection between local point-transformations on the infinite jet prolongation of the configuration bundle for a dynamical system and its dynamical symmetries and conservation laws will be presented. In particular, it is noted that differential identities expressed as partial differential equations are generalized forms of Green's Vector Identity, and can be used as such, as an analytical tool to establish connections between symmetries, and conservation laws. The efficiency of the method as applied to Noether's Theorem, as to formulating the relationship between symmetries and conservation laws, will be demonstrated. (Received September 26, 2012)