1056-34-433 **Camilo Sanabria*** (csanabria_malagon@gc.cuny.edu), Mathematics Ph.D. Program, The CUNY Graduate Center, 365 Fifth Avenue, Room 4208, New York, NY 10016-4309. *Symmetries of Standard Equations.*

We concentrate our attention on Linear Differential Equations over Compact Riemann surfaces and we address the problem of descent. An early result on this setting is Klein's Theorem which states that any second order linear differential equation with algebraic solutions is the pullback of a standard hypergeometric equation. M. Berkenbosch, M. van Hoeij and J.A. Weil introduced the concept of standard equation leading, on one hand, to Berkenbosch's generalization of Klein's theorem to the third order; and, on the other, to a very efficient algorithm, improving Kovacic's, that makes the above-mentioned pullback explicit. On their turn, standard equations may be pullbacks of other equations, deepening further the descent. In this talk I will expose how descent conditions for standard equations can be obtained through the outer-automorphisms of their Galois Group. The key-tool to achieve this last descent will be the study of the symmetries of the equation. Symmetries of equations are easy to define in terms of connections: under the well know correspondence between linear differential equations and meromorphic vector bundles with connection, a symmetry of the equation is an automorphism of the underlying Rieman surface lifting to a parallel morphism on the vector bundle. (Received September 07, 2009)