Meeting: 1003, Atlanta, Georgia, SS 37A, AMS Special Session on In the Wake of Jacobi and Hamilton 200 Years Later, I

1003-20-1460 **Keshlan S Govinder*** (`govinder@ukzn.ac.za`), School of Mathematical Sciences, University of KwaZulu–Natal, 4041 Durban, KZN, So Africa. *Revisiting the Pseudo-stabilization of Prolonged Group Actions.* Preliminary report.

The nature of the orbits (in particular, the dimension) of the different prolongations of a group of transformations are crucial in the study of the group's differential invariants. It has been observed (Ovsiannikov, L V, *Group Analysis of Differential Equations*, (Academic Press, New York, 1982); Olver, P J, *Equivalence, Invariants and Symmetry*, (Cambridge University Press, Cambridge, 1995)) that, in some cases, the orbit dimensions pseudo-stabilize (ie. two successive prolonged orbit dimensions are equal to each other but are less than the maximal prolonged orbit dimension). Recently, the uniqueness of groups exhibiting this behavior was demonstrated in the planar case for general kth order stabilization. In the more general case (p independent and q dependent variables), the result was only proved for zeroth order stabilization. Here, we rederive these results in a different manner and point to possible resolutions of the higher order stabilization problem in the general case. (Received October 05, 2004)

1