1054-11-191 **Pär M Kurlberg*** (kurlberg@math.kth.se), Department of Mathematics, KTH, 10044 Stockholm, Sweden, and **R. L. Benedetto**, **D. Ghioca**, **T. J. Tucker** and **U. Zannier**.

Dynamical analogues of the Mordell-Lang Conjecture and the Mumford gap principle.

We prove a special case of a dynamical analogue of the classical Mordell- Lang conjecture. In particular, let ϕ be a rational function with no super- attracting periodic points other than exceptional points. If the coefficients of ϕ are algebraic, we show that the orbit of a point outside the union of proper preperiodic subvarieties of $(P_1)^g$ has only finite intersection with any curve contained in $(P_1)^g$. The result can viewed a non-linear version of the Skolem-Mahler-Lech theorem (namely that the zero set of a linear recurrence set is eventually periodic.) Time permitting, we will also discuss the general case (e.g., ϕ having superattracting periodic points); in particular, showing very rapid rate of growth of indices in case the zero set is not periodic. (Received September 14, 2009)