Meeting: 1006, Lubbock, Texas, SS 7A, Special Session on Topology of Dynamical Systems

1006-37-115 **Doug Childers*** (childers@math.uab.edu), Campbell Hall, 1300 University Blvd., Birmingham, AL 35294-1170. *Hedgehogs are in the limit set of a recurrent critical point.* Preliminary report.

Let P be a complex polynomial with Julia set J. Suppose z_0 is an irrationally neutral fixed point. Depending on the situation, let us use Δ to denote the maximal Siegel disk containing z_0 (in case P is linearizable about z_0, i.e. the *Siegel Case*), and otherwise (in the *Cremer Case*) set $\Delta = z_0$. Now, let us suppose that U is a simply connected, open neighborhood of $\overline{\Delta}$ such that P is univalent on a neighborhood of $\overline{U}$. Then, by a result of R. Pérez-Marco, there is an invariant continuum $H \subset \overline{U}$, containing $\overline{\Delta}$, such that $H \cap \partial U \neq \emptyset$. Moreover, it follows that $\partial H \subset J$. We call such a continuum, H, a *hedgehog* of z_0. We show that for every hedgehog H of z_0, there exists a recurrent critical point $c \in J$ such that $\partial H \subset \omega(c)$. In addition, define M to be the closure of the union of ∂H over all hedgehogs H of z_0. As a corollary to our result, if z_0 is an indifferent fixed point of a complex polynomial with exactly one critical point c, then $\omega(c) = M$. (Received February 10, 2005)