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**John W. Neuberger\*** (jwn@unt.edu). *A Nash-Moser inverse function result using continuous Newton's method.*

Suppose that each of  $H, J, K$  is a Banach space with  $H$  compactly embedded in  $J$ ,  $r > 0, w \in H$  and  $F$  is a function from  $B_{r,H}(w)$  to  $K$  which is continuous in the  $J$  topology. If for each  $x \in B_{r,H}(w)$  there is  $h \in B_{r,H}(0)$  so that  $\lim_{t \rightarrow 0^+} (1/t)(F(x + th) - F(x)) = -F(w)$ , then there is  $u \in B_{r,H}(w)$  so that  $F(u) = 0$ . Such an element  $u$  is found as the limiting value of a Newton vector field flow starting at  $w$ . (Received September 14, 2005)