1037-58-94   **E Cabral Balreira*** (`ebalreir@trinity.edu`), One Trinity Place, Department of Mathematics, San Antonio, TX 78212. *Foliations and Global Invertibility.*

The problem of deciding when a local diffeomorphism $f : X \to X$ is a a global diffeomorphism has several applications in Mathematics including Nonlinear Analysis, Algebraic Geometry and Mathematical Economics. We will discuss recent ideas in the are of Geometric and Topological methods for global invertibility. Our main theorem states that a local diffeomorphism $f : \mathbb{R}^n \to \mathbb{R}^n$ is bijective if and only if the pre-image of every affine hyperplane is non-empty and acyclic (i.e., it has the homology of a point). We also present natural analytical conditions which imply our topological hypotheses and we will report on recent developments considering other topological conditions. (Received January 25, 2008)