1105-58-292 **Manousos Maridakis*** (manousos.maridakis@rutgers.edu), Hill Center for mathematical Sciences, Bush Campus, Piscataway, NJ 08854. *The concentration principle for Dirac operators.*

The symbol map of a Fredholm Operator is carrying essential topological and geometrical information about the underline manifold. Our approach to this direction is by studying Dirac operators involving a perturbation term. In particular we think of operators of the form $\mathcal{D} + s\mathcal{A} : \Gamma(E) \to \Gamma(F)$ over a Riemannian manifold (X, g) for special bundle maps $\mathcal{A} : E \to F$ and study their behavior as $s \to \infty$. We start with a simple criterion that insures localization. Two main aspects of localization are being examined : First is the separation of the spectrum of this family of operators into low and high eigenvalues for large s. Second is the observation that eigenvectors corresponding to low eigenvalues L^2 concentrate near the singular set of the perturbation bundle map $\mathcal{A}$. This gives a new localization formula for the index of $\mathcal{D}$ in terms of the singular set of $\mathcal{A}$. (Received September 22, 2014)