

**David Ebin**

Title: Groups of diffeomorphisms and geodesics on them

Abstract: We shall consider the group of diffeomorphisms of a compact manifold and its infinite dimensional subgroups which leave various structures invariant. A Riemannian metric on the manifold can be used to construct one on the various subgroups. We shall show the existence of local (short time) geodesics on these subgroups and in some cases global (all time) geodesics. Two interesting cases are the subgroups that preserves a contact form or a symplectic form on the manifold.