Zhigang Han* (zganghan@math.sunysb.edu), Department of Mathematics, Stony Brook University, Stony Brook, 11794. Bi-invariant metrics on the group of symplectomorphisms.

Abstract: In this talk, we consider the extension of the Hofer metric and general Finsler metrics on Hamiltonian symplectomorphism group \( Ham(M, \omega) \) to the identity component of symplectomorphism group \( Symp_0(M, \omega) \). In particular, we will show that the Hofer metric does not extend to a bi-invariant metric on \( Symp_0(M, \omega) \) for many symplectic manifolds. We also prove that for the torus \( \mathbb{T}^{2n} \) with the standard symplectic form \( \omega \), no Finsler metric that satisfies a strong form of the invariance condition can extend to a bi-invariant metric on \( Symp_0(\mathbb{T}^{2n}, \omega) \). (Received September 16, 2005)