1014-58-469 **Yong-Geun Oh*** (oh@math.wisc.edu), Department of Mathematics, University of Wisconsin-Madison, 480 Lincoln Drive, Madison, WI 53706. *Towards the continuous Hamiltonian dynamical systems.*

We first introduce the notion of the *(C^0) Hamiltonian topology* on the space of Hamiltonian paths, and on the group of Hamiltonian diffeomorphisms respectively. We then define a *group* denoted by $Hameo(M,\omega)$ consisting of *Hamiltonian homeomorphisms* that we also define. We prove that $Ham^{(1,1)}(M,\omega) \subsetneq Hameo(M,\omega) \subset Sympeo(M,\omega)$ where $Sympeo(M,\omega)$ is the group of symplectic homeomorphisms and $Ham^{(1,1)}(M,\omega)$ is the set of homeomorphisms obtained by the time-one maps of $C^{(1,1)}$ time-dependent Hamiltonian functions. We prove that $Hameo(M,\omega)$ is a *normal subgroup* of $Sympeo(M,\omega)$ which is path- connected and so contained in the identity component $Sympeo_0(M,\omega)$ of $Sympeo(M,\omega)$. In the case of two dimensional compact surfaces, we prove that the *mass flow* of any element from $Hameo(M,\omega)$ vanishes, which in turn implies that $Hameo(M,\omega)$ is strictly smaller than the identity component of the group of area preserving homeomorphisms when $M \neq S^2$. For the case of S^2, we conjecture that the same is still true. (The latter group turns out to coincide with $Sympeo_0(M,\omega)$ for two dimensional surface M.) (Received September 16, 2005)