1102-22-150 **Hassan Lhou** and **Jeb F. Willenbring*** (willenbring@gmail.com), University of Wisconsin - Milwaukee, Department of Mathematical Sciences, 3200 North Cramer Street, Milwaukee, WI 53211-3029. *Progress on a classification of small subgroups of a compact group.* Preliminary report.

Let $\mathbb{G}$ be a connected reductive algebraic group, and let G be a real form, with a maximal compact subgroup K. Denote the Lie algebra of $\mathbb{G}$ by $\mathfrak{g}$. To an irreducible, unitary G-representation, $\mathcal{H}$, one associates an underlying Harish-Chandra module $\mathcal{M}$ for the pair ($\mathfrak{g}$,K). The action of $\mathfrak{g}$ on $\mathcal{M}$ is irreducible, and K acts locally finitely. Furthermore, $\mathcal{M}$ is *admissible* for K. That is, all irreps of K occur in $\mathcal{M}$ with finite multiplicity. The classification of admissible Harish-Chandra modules is a major step toward finding the unitary dual of G.

This talk concerns the irreps of K and its subgroups. Given a closed subgroup S of K, every irrep of K can be regarded as a S-representation by restriction. We say that S is *small* in K if there exists $b > 0$ such that for all K-irreps, V, there exists an S-irrep, W, with dimension at most b and occurring in V. That is, the minimal dimension of an S-irrep occurring in a K-irrep is bounded by b.

One can ask, is $\mathcal{M}$ admissible with respect to S? A necessary condition for this to be true is that S is not small in K. We present results toward a classification of small subgroups of K. (Received July 27, 2014)