**Speaker:** Hee Oh

**Title:** Tempered and Non-Tempered Non-Lattice Subgroups in Higher Rank

**Abstract:** For a discrete subgroup of $\Gamma$ of a simple real algebraic group $G$, we consider the associated quasi-regular representation $L^2(\Gamma\backslash G)$. A key notion in this context is temperedness, indicating whether $L^2(\Gamma\backslash G)$ is weakly contained in the regular representation $L^2(G)$. Discrete subgroups $\Gamma$ satisfying this condition are called tempered (or very small). In recent work by Edwards-Fraczyk-Lee-Oh, it was shown that for any non-lattice discrete subgroup in higher rank, the bottom of the $L^2$-spectrum of the associated locally symmetric manifold is never an atom. While such a result implies the temperedness of $\Gamma$ in rank one, the situation in higher rank turns out to be different. We show that there exist both tempered as well as non-tempered non-lattice Zariski dense discrete subgroups in higher rank. This talk is based on joint work with Micloaj Fraczyk and, separately, with Subhadip Dey and Dongryul Kim.