Date: March 20 (Tue), 2007, 16:30–17:30  
Place: Room 402 RIMS, Kyoto University  
Speaker: Herve Sabourin (Universite de Poitiers)  
Title: Unipotent representations of a real simple Lie group attached to small nilpotent orbits  

Abstract: It is a classical idea of Kirillov and Kostant that irreducible representations of a real simply connected Lie group $G$ are related to the orbits of $G$ in the dual $\mathfrak{g}^*$ of its Lie algebra. When $G$ is nilpotent, we know that there is a bijection between the set of $G$-coadjoint orbits and the unitary dual $\hat{G}$ of $G$. When $G$ is solvable, a similar correspondence is due to Auslander and Kostant. For other groups, there are complications even with regard to what is true. Let us suppose now that $G$ is simple and let $O$ be a coadjoint orbit. If $O$ is semi-simple, there is a natural way to associate to $O$ an unitary representation $\Pi(O)$, but the problem is much more difficult if $O$ is nilpotent. Nevertheless, when $O$ is a minimal nilpotent orbit, one can define a notion of representation “associated” to $O$ and develop a strategy to construct explicitly $\Pi(O)$. Our goal is to show how this strategy can be extended to the non minimal case and what kind of new results it yields.

Organizer: Toshiyuki Kobayashi (RIMS)  
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