Lie Group and Representation Theory Seminar
Kyoto 2007

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 $\widehat{G}$ 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.