

Lie Groups and Representation Theory Seminar at the University of Tokyo

リー群論・表現論セミナー

- DATE November 22 (Tue), 2011, 16:30–18:00
- PLACE Room 002, Graduate School of Mathematical Sciences
- SPEAKER **Takayuki Okuda** (奥田隆幸) (the University of Tokyo)
- TITLE Smallest complex nilpotent orbit with real points
- ABSTRACT Let \mathfrak{g} be a non-compact simple Lie algebra with no complex structures. In this talk, we show that there exists a complex nilpotent orbit $\mathcal{O}_{\min, \mathfrak{g}}^{G_{\mathbb{C}}}$ in $\mathfrak{g}_{\mathbb{C}}$ ($:= \mathfrak{g} \otimes \mathbb{C}$) containing all of real nilpotent orbits in \mathfrak{g} of minimal positive dimension. For many \mathfrak{g} , the orbit $\mathcal{O}_{\min, \mathfrak{g}}^{G_{\mathbb{C}}}$ is just the complex minimal nilpotent orbit in $\mathfrak{g}_{\mathbb{C}}$. However, for the cases where \mathfrak{g} is isomorphic to $\mathfrak{su}^*(2k)$, $\mathfrak{so}(n-1, 1)$, $\mathfrak{sp}(p, q)$, $\mathfrak{e}_{6(-26)}$ or $\mathfrak{f}_{4(-20)}$, the orbit $\mathcal{O}_{\min, \mathfrak{g}}^{G_{\mathbb{C}}}$ is not the complex minimal nilpotent orbit in $\mathfrak{g}_{\mathbb{C}}$. We also determine $\mathcal{O}_{\min, \mathfrak{g}}^{G_{\mathbb{C}}}$ by describing the weighted Dynkin diagrams of these for such cases.