



E i n l a d u n g

zum

Kolloquium des Mathematischen Instituts
(unterstützt durch GK Topologie und Metageometrie und
Leibniz-Preis)

am Donnerstag, 10.06.2010 um 16:30 Uhr, im Hörsaal M5, spricht

Professor Dr. Karl-Hermann Neeb

(Universität Darmstadt)

über das Thema:

**„Semiboundedness in the representation theory of infinite
dimensional Lie groups “**

Abstract:

According to Stone's Theorem, unitary one-parameter groups on Hilbert spaces are determined by their infinitesimal generators, which are, generally unbounded, selfadjoint operators. The key feature of Lie groups G is that they are, to a large extent, determined by their one-parameter groups which are parametrized by the Lie algebra $L(G)$. Therefore a unitary representation of G leads to a family of selfadjoint operators parameterized by $L(G)$, called the derived representation. We report on recent progress on a class of representations which is defined by suitable semiboundedness conditions for the spectra of the operators in the derived representation. Using the momentum map from symplectic geometry, one relates these representations to coadjoint orbits in the dual of the Lie algebra carrying rich geometric structures. In particular, they are often complex Kähler manifolds. A surprising feature is that many types of infinite dimensional groups show unexpected semiboundedness properties which are invisible for their finite dimensional relatives.

Tee wird ab 16 Uhr im SR0 des Mathematischen Instituts serviert.