Title: Completely Bounded Multiplier Norm of Spherical Functions on the Generalized Lorentz Groups

Abstract: There will be a short introduction to the basic structures of the talk, i.e., generalized Lorentz groups ($SO_0(1,n)$), Gelfand pairs, spherical functions and completely bounded multipliers of the Fourier algebra of a locally compact group G (written $M_0A(G)$).

The main result is an explicit formula for the $M_0A(G)$–norm of the spherical functions on $SO_0(1,n)$. As a corollary we get that the set of spherical functions on $SO_0(1,n)$ with finite $M_0A(G)$–norm does not have a uniform bound on the $M_0A(G)$–norms (earlier, De Cannière–Haagerup have found an upper bound estimate of the norm which admitted this as a possibility). This statement is also true for $SU(1,n)$, $Sp(1,n)$, $F_{4(-20)}$ and $PGL(\mathbb{Q}_q)$ (q prime). The case $PGL(\mathbb{Q}_q)$ follows from a result by Haagerup–Szwarc–S in which explicit formulas for the $M_0A(G)$–norm of the spherical functions on $PGL(\mathbb{Q}_q)$ are found. From this we get that for each of these groups there are $M_0A(G)$ functions which are not coefficients of strongly continuous uniformly bounded representations. The proof is inspired by an unpublished paper by Haagerup, in which he shows the analogue statement for the non–abelian free groups $\mathbb{F}_N$ ($2 \leq N < \infty$).