Title: A new(ish) group von Neumann algebra

Speaker: Martin Wanvik (NTNU)

Time and Dates: 3:30pm, Thursday 20 Oct, 27 Oct, and 3 Nov 2011

Location: Room 15.113 (Access Grid Room)

Abstract: Consider the category $W^*$ of $W^*$-algebras (i.e. $C^*$-algebras with a predual) and normal ($\sigma$-weakly continuous) unit-preserving $*$-homomorphisms. On this category, we can define a functor $U$ which takes each $W^*$-algebra to its unitary group with the $\sigma$-weak topology (so the codomain of $U$ is the category of topological groups). We show, using the Freyd adjoint functor theorem, that $U$ has a left adjoint functor, which will be the group algebra in question. We also show that it overlaps with the universal enveloping $W^*$-algebra of $C^*(G)$ in a number of cases (at least for discrete groups, probably also for compact groups).

The first seminar will consist of an informal introduction, and a review of the category theory that will be needed to understand what this is all about.