Abstract

Let $G$ be a locally compact group and $U$ a unitary representation of a closed subgroup $H$ of $G$ on some Hilbert space $\mathcal{H}$. When does $U$ extend to a unitary representation of $G$ on the same Hilbert space $\mathcal{H}$?

For normal subgroups $N$, Clifford answered this extension problem for finite-dimensional irreducible representations of discrete groups: there is an obstruction to extending the representation in the cohomology group $H^2(G/N, \mathbb{T})$, where $\mathbb{T}$ is the circle. Mackey extended Clifford’s results to irreducible representations of locally compact groups: his obstruction lies in a cohomology theory where the cochains are Borel.

I will discuss ways of tackling the extension problem for arbitrary (i.e. not necessarily irreducible) representations.

This is joint work with Steven Kaliszewski, Iain Raeburn and Dana Williams.