Pseudodifferential Operators over matrices and Group Algebras

Eduardo Tablate Vila

Classical pseudodifferential operators can be regarded as generalisations of Fourier multipliers and have a significant impact in Harmonic Analysis, partial differential equations and differential geometry. In this talk we present several results related with the extension of this theory to two noncommutative settings: group von Neumann algebras $\mathcal{L}(G)$ and matrix algebras. A *transference principle* connects these realms: L_p-boundedness pseudodifferential operators on group von Neumann algebras is connected to boundedness of their matrix counterparts on Schatten classes. This allow us to generalise the Calderón-Vaillancourt and the Hörmander theorem to this noncommutative context. This is joint work with J. Conde, A. González and J. Parcet.