

Analysis Seminar Thursday May 21, 2015 at 2pm

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Title: *From Hermitian Clifford Analysis to Subelliptic Dirac Operators on Odd Dimensional Spheres and other CR Manifolds.*

Abstract: In recent years a number of papers have appeared on a topic known as Hermitian Clifford analysis. Here two Dirac operators are introduced on two projections of \mathbb{C}^{2n} . Also a Cauchy Integral Formula has been introduced for a matrix differential operator comprising of both these operators. Recently it has been shown that these operators can be identified with the \bar{d} -operator and its conjugate arising in several complex variables. Further recently by using some identification of matrix representations of two dimensional Clifford algebras this Cauchy Integral Formula may be identified with the usual Cauchy Integral Formula arising in Clifford analysis. However using the complex structure of an odd dimensional sphere one can construct a subelliptic Dirac operator from the d_b -operator and its conjugate. This operator is invariant under actions of the group $U(n)$ and acts on spinor valued sections over the sphere. We are assuming the dimension of the sphere is three or greater. Time permitting we will look at similar constructions on other CR manifolds. Also time permitting we will look at a square root of the heat operator in Euclidean space and on $R^+ \times S^{2n-1}$.