Analysis Seminar Thursday April 27, 2017

Speaker Wanqing Cheng

Title: *The Π-operator in Clifford Analysis and its Applications*

Abstract: In this talk we will introduce the Π-operator, which is also known as Ahlfors-Beurling transform. It plays an important role in solving the existence of solutions to Beltrami equations. Firstly, we review the complex Π-operator and the relationship between quasiconformal mappings and the Beltrami equations. Then, motivated by the form of the Π-operator on the complex plane, we construct a Π-operator on a general Clifford-Hilbert module. This Π-operator also possesses an L^2 isometry property. Further, this can also be used for solving certain Beltrami equations when the Hilbert space is the L^2 space of a measure space. To conclude this talk, we show that this idea can be applied to examples of the Euclidean space, cylinders, Hopf manifolds, n-dimensional hyperbolic upper half space and higher spin spaces. This is joint work with John Ryan.