Analysis Seminar Thursday May 4, 2017

Speaker Wanqing Cheng

Title: *The Π-operator in Clifford Analysis and its Applications (Part two)*

Abstract: The Π-operator (Ahlfors-Beurling transform) plays an important role in solving the Beltrami equation. In this paper we define two Π-operators on the n-sphere. The first spherical Π-operator is shown to be an L^2 isometry up to isomorphism. To improve this, with the help of the spectrum of the spherical Dirac operator, the second spherical Π operator is constructed as an isometric L^2 operator over the sphere. Some analogous properties for both Π-operators are also developed. We also study the applications of both spherical Π-operators. Then we move to the real projective space, which is a conformally flat manifold. We construct the Π-operator on the real projective space and study the real projective Beltrami equation. Finally we construct an L^2 isometric Π-operator in higher spin spaces. This is a joint work with John Ryan.