

**IMIA Operator Algebra and Noncommutative Geometry Seminar**  
University of Wollongong

Title: The (Noncommutative) Geometry of Self-Dual Yang-Mills Gauge Fields

Speaker: Simon Brain (Radboud University Nijmegen, Netherlands)

Time and Date: 3:30pm Thursday 29 and 3:30pm Friday 30 January 2015

Location: Room 39C.meeting room

Abstract: In these two talks I will review the construction of the moduli space of instantons (connections with Hodge-self-dual curvature) on the Euclidean four-sphere. I will describe the Penrose twistor fibration  $CP^3 \rightarrow S^4$  and the Atiyah-Penrose-Ward relationship between the differential geometry  $S^4$  and the holomorphic structure of the complex projective space. Although the results I will describe are well known, the novel feature is that it will be done using the language of non-commutative geometry. Based on joint work with Giovanni Landi.