Amedeo Altavilla  
(University of Rome 2 "Tor Vergata")

**SLICE POLYNOMIALS AND TWISTOR GEOMETRY OF RULED SURFACES IN CP^3**

**ABSTRACT:**

One of the most interesting aspects of the recent theory of slice regular functions over the quaternions is that it proved to have a fruitful interaction with the theory of twistor geometry. In fact, one can describe the theory of slice regularity using the language of complex geometry and thus use this description to associate with any injective slice regular function an orthogonal complex structure (OCS) defined on its image. In this talk I will use this twistorial interpretation to analyze a special family of slice regular functions defined outside the real axis that we named slice polynomials. The interest of this class of functions relies in the fact that they can be exploited to describe the twistor geometry of a wide family of hypersurfaces in CP^3. As an application of these new tools, I will show how to study the twistor discriminant locus of a cubic scroll in CP^3.

The work is in collaboration with Giulia Sarfatti (UNIFI) and uses tools from various theories: complex analysis, algebraic and differential geometry and elementary algebra.

**Contact person:** Alessandro Perotti