

**Speaker:** Stefan Bechtluft-Sachs

**Title:**

Green's function of Dirac Operators on rank-1-symmetric spaces.

**Abstract:**

In harmonic spaces the introduction of radial functions reduces the scalar Laplace equation to an ordinary differential equation. The Laplace operator has a right inverse whose integral kernel, Green's function, is radial in the sense that it is a function of the distance only. Our main aim is to extend this radial calculus to Dirac operators and operators that can be derived from these, like the Cartan differential and the Laplacian on differential forms.

On compact manifolds a solution of the Dirac equation on differential forms yields a solution of the Cartan equation via Hodge Theory. This in turn provides a density for Gauss-type formulas for the linking number (in 3 dimensions this is essentially the Biot-Savart law for the magnetic flux induced by a stationary current). On non-compact rank one symmetric spaces, in the absence of Hodge Theory, we get the same results from our radial equation.  
(joint with E.Samiou)