

**Dr. David Lindemann**

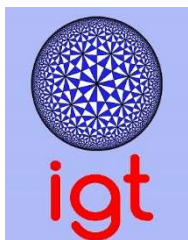
(Universität Hamburg)

**Properties of the moduli space of  
complete connected projective special  
real manifolds**

**11. Dezember 2018 – 16.15 Uhr**

**Seminarraum IGT, Raum 7.530, Pfaffenwaldring 57**

Abstract: A projective special real (PSR) manifold  $H \subset R^{n+1}$  is a hyperbolic centro-affine hypersurface that is contained in the level set of a hyperbolic homogeneous cubic polynomial. PSR manifolds are the scalar manifolds in 5d supersymmetry coupled to gravity, which relates them to projective special Kähler manifolds (via the supergravity r-map) and quaternionic Kähler manifolds (via the composition of the supergravity r- and c-map). They also appear in the study of the geometry of the cone of Kähler classes of compact Kähler 3-folds. I will explain the construction of a generating set of the moduli space of complete connected PSR manifolds for every dimension  $n \geq 1$  (two such manifolds are called equivalent if they are related by a linear transformation of the ambient space). Properties of that generating set can be used to find global curvature bounds for these manifolds, and one can show that the boundary behaviour of a PSR manifold is related to whether or not one representative is contained in the boundary of the aforementioned generating set. I will also briefly discuss possible generalizations of PSR manifolds related to higher degree homogeneous polynomials and explain the difficulties that one encounters in comparison with the PSR case.



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