

**Stony Brook University
The Graduate School**

Doctoral Defense Announcement

Abstract

5d N=1 Supersymmetry and Contact Geometry

By

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We will discuss 5d $N = 1$ supersymmetric theories on curved 5d Riemannian manifolds and its relation to contact geometry. We start with the Killing spinor equations derived from the rigid limit of 5d $N = 1$ supergravity. Combining with the dilatino equations, we see that a large class of supersymmetric backgrounds are transversal holomorphic foliations. With these, we go on to discuss the Higgs branch localization of $N = 1$ theories on K-contact manifolds, in which case we discover that the BPS solutions are generalized Seiberg-Witten equations on K-contact manifolds. Finally we show that the solutions to the generalized Seiberg-Witten equations are in one-to-one correspondence with the poles of the Coulomb branch 1-loop determinant and the suppression of the integrand when the mass parameters and number of flavor are within certain bounds.

Date: 06-10-2015

Time: 11:00am

Place: Math Tower 6th floor, YITP common room

Program: Physics

Dissertation Advisor: Martin Rocek