

FELIX KLEIN SEMINAR

Guest Speaker: Lorenzo Foscolo
Stony Brook University

Date: Thursday, December 1, 2016

Time: 2:00 PM

Location: 125 Hayes-Healy Hall



Lecture Title:

ALF spaces and collapsing Ricci-flat metrics on the K3 surface.

Abstract

The Kummer construction of Kähler Ricci-flat metrics on the (smooth 4-manifold underlying a complex) K3 surface provides the prototypical example of the formation of orbifold singularities in non-collapsing sequences of Einstein 4-manifolds. Much less is known about the structure of the singularities forming along sequences of collapsing Einstein metrics. I will describe the construction of large families of Ricci-flat metrics on the K3 surface collapsing to the quotient of a flat 3-torus by an involution. The collapse occurs with bounded curvature away from finitely many points. The geometry around these points is modelled by ALF gravitational instantons (i.e. complete hyperkähler 4-manifolds with cubic volume growth and decaying curvature).