Title:
"Semistable Pairs and Lower bounds on K-Energy Maps"

Abstract:
Let X be a smooth, linearly normal, complex projective (nonlinear) variety. Let B be the set of Bergman metrics corresponding to this embedding. The speaker will discuss how the idea of a "semistable pair" plays a role in the proofs of the following Theorems:

Theorem 1.
The K-energy of X (with respect to the Fubini-Study metric on X) is bounded below on B if and only if it is bounded below on all one parameter degenerations in B.

This reduces the check of the K-energy bound (at least on B) to a finite "polyhedral-combinatorial" problem in algebraic geometry.

Theorem 2.
Let X ----> Y be a flat G-equivariant family of polarized algebraic submanifolds of P^N. Then the locus of points in Y whose fibers have a lower K-energy bound on the space of Bergman metrics is a finite union of locally closed subvarieties of Y.