

**Stony Brook University  
The Graduate School**

Doctoral Defense Announcement

**Abstract**

**Compact complex surfaces and  
constant scalar curvature Kaehler metrics**

By

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Let  $(M, J)$  be a compact complex manifold. There are classical obstructions to the existence of constant scalar curvature Kaehler (cscK) metrics related to the automorphism group  $\text{Aut}(M, J)$ . Arezzo and Pacard have shown that the blow-up/resolution of a compact manifold/orbifold of discrete type, which admits cscK metrics, still admits cscK metrics. Using their result, the following statement is proved: Every compact complex surface with even first Betti number, which is not deformation equivalent to the blow-up of  $\mathbb{C}P^2$  at one or two points, is deformation equivalent to a surface which admits cscK metrics. A construction of compact complex surfaces with cscK metrics of different deformation classes will be presented in the defense.

**Date:** July 26, 2007

**Time:** 11 a.m.

**Place:** Mathematics, room5-127

**Program:** Mathematics

**Dissertation Advisor:** Professor LeBrun