

Northern California Symplectic Geometry Seminar

BERKELEY – DAVIS – SANTA CRUZ – STANFORD

Monday, November 5, at **Stanford**

2:30–3:30, room 383N, **Jongil Park (Seoul National University)**

“Simply connected surfaces of general type with $p_g=0$ and $K^2 > 0$ ”

Abstract: One of the fundamental problems in the classification of complex surfaces is to find a new family of simply connected surfaces with $p_g = 0$ and $K^2 > 0$. In this talk, I will sketch how to construct a new family of simply connected symplectic 4-manifolds using a rational blow-down surgery and how to show that such 4-manifolds admit a complex structure using a Q-Gorenstein smoothing theory. Finally we show that such surfaces are in fact minimal surfaces of general type with $p_g = 0$ and $1 \leq K^2 \leq 3$.

If time allows, I will also sketch how to construct a simply connected, minimal, symplectic 4-manifold with $b_2^+ = 1$ (equivalently, $p_g = 0$) and $K^2 = 4$ using a rational blow-down surgery.

Parts of this talk are based on joint work with Y. Lee or H. Park and D. Shin.

3:30–4:00 — Tea Break, 2nd floor lounge

4:00–5:00, room 383N, **Alvaro Pelayo (MIT)**

“Symplectic actions of two-tori on four-manifolds”

Abstract: I will present a classification of symplectic actions of two-tori on compact, connected symplectic four-manifolds, up to equivariant symplectomorphisms. The classification is in terms of a collection of invariants of the topology of the manifold, of the torus action and of the symplectic form. I will present explicit models of such symplectic manifolds with torus actions, defined in terms of these invariants. A stepping stone for this classification is the previous classification of symplectic torus actions with coisotropic principal orbits due to J.J. Duistermaat and the speaker.

Please contact ionel@math.stanford.edu to arrange parking.

There will be a dinner at 6pm.

—Y. Eliashberg
D. Fuchs
V. Ginzburg
E. Ionel
R. Montgomery
A. Weinstein