1110-14-213 **Christopher Lyons***, clyons@fullerton.edu, and **Paul Lewis**. *The Tate Conjecture for surfaces with $p_g = q = 1$ and $K^2 = 2$.* Preliminary report.

Smooth projective surfaces with the invariants $p_g = 1$, $q = 1$, and $K^2 = 2$ were classified over $\mathbb{C}$ by Bombieri—Catanese and Horikawa. Although they are of general type, these surfaces possess attractive special features. For instance, via the Albanese map, they fiber into genus 2 curves over an elliptic curve. They may also be expressed as branched double covers of the symmetric square of an elliptic curve. Finally, the Kuga-Satake construction relates them to abelian varieties.

Using these features, we identify a certain dense open subset of the moduli space of these surfaces for which one may prove the Tate Conjecture in characteristic zero. (Specifically, we prove the conjecture for those surfaces whose canonical bundle is very ample.) This is accomplished by establishing a big monodromy theorem, and then exploiting the Kuga-Satake construction and Faltings' results on abelian varieties. One key ingredient along the way is to find such a surface with minimal Picard number, and this is done by reducing modulo p and counting points. (Received February 21, 2015)