1012-17-76   **Jason P Bell*** (`jpb@math.sfu.ca`), Department of Mathematics, Simon Fraser University, Burnaby, BC Canada. *Projective surfaces and critical density.* Preliminary report.

Let X be a projective surface over a field of characteristic 0 with an automorphism σ. Given a point $q \in X$ we consider the set $\{\sigma^n(q) \mid n \in \mathbb{Z}\}$. This set is said to be *critically dense* if it has a finite intersection with each proper subvariety of X. We show that this set is critically dense if and only if it is Zariski dense. From this, and the work of Rogalski, we are able to draw some curious conclusions about graded subalgebras of twisted homogeneous coordinate rings. In addition to this, we give some pathological examples in positive characterisitic. (Received September 07, 2005)