1032-11-110 **Arthur Baragar*** (baragar@unlv.nevada.edu), Department of Mathematical Sciences, University of Nevada, Las Vegas, 4505 Maryland Parkway, Las Vegas, NV 89154-4020. *Orbits of rational points on certain $K3$ surfaces.*

In this talk, we investigate the orbit of a rational point under the action of the group of automorphisms on a $K3$ surface with a particular Picard lattice. If the orbit is not finite, then the number of points in the orbit with bounded Weil height has an exponent of growth of α, where $\alpha = .6527 \pm .0012$. The exponent α can be interpreted as the Hausdorff dimension of a fractal set associated to the ample cone. We give a pictorial representation of this fractal as well as those associated to a few other Picard lattices. (Received August 16, 2007)