1077-55-1775 **Jeremy Kenneth Miller*** (jkmiller@stanford.edu), Building 380, Stanford University, Room 381K, Stanford, CA 94305. *Homological stability properties of spaces of rational J-holomorphic curves in $\mathbb{C}P^2$.*

In a well known work, Graeme Segal proved that the space of holomorphic maps from a Riemann surface to a projective space is homology equivalent to the corresponding continuous mapping space through a range of dimensions increasing with degree. We investigate if a result similar to that of Segal holds when other (not necessarily integrable) almost complex structures are put on a projective space. Under supervision of my advisor Ralph Cohen at Stanford University, I obtained the following partial result; the inclusion of the space of based degree k J-holomorphic maps from $\mathbb{C}P^1$ to $\mathbb{C}P^2$ into the based twofold loop space is a homology surjection for dimensions $j \leq 3k - 3$. The proof involves using a result of Gromov showing that the topology of degree one J-holomorphic mapping spaces are independent of choice of almost complex structure. Then we construct a gluing map in the sense of Taubes gluing of instantons and compare it to a gluing map which is part of the little 2-disks operad structure on the integrable holomorphic mapping space introduced by Fred Cohen. (Received September 20, 2011)