1031-53-103 **Jacob Sturm*** (sturm@andromeda.rutgers.edu), Department of Mathematics, 101 Warren Street, Rutgers University, Newark, NJ 07102. *Geodesics in the space of Kähler metrics*

.

We discuss some joint work with D.H. Phong:

Let $L \to X$ be an ample line bundle over a compact complex manifold X, and let $\mathcal{H}$ be the space of positively curved hermitian metrics on L. Then $\mathcal{H}$ is an infinite dimensional symmetric space (known as the space of Kähler potentials) and it contains, for each sufficiently large integer k, the space H_k of Bergman metrics, which is a finite dimensional symmetric space. It is known, by the work of Tian-Yau-Zelditch, that $\cup_k H_k \subset \mathcal{H}$ is dense in $\mathcal{H}$ with respect to the C^∞ norm. We shall show that given two points $h_0, h_1 \in \mathcal{H}$, that there is a canonically defined sequence of smooth geodesic segments in H_k which approach, as k tends to infinity, the $C^{1,1}$ geodesic in $\mathcal{H}$ which joins h_0 to h_1. Moreover, given a point in $h_0 \in \mathcal{H}$ and a test configuration T, we shall construct a canonical sequence of geodesic rays in H_k which approach a weak ray in $\mathcal{H}$ emanating from h_0. Finally, we show that associated to a point $h_0 \in \mathcal{H}$ and test configuration T, one can construct a $C^{1,1}$ ray emanating from h_0. (Received August 06, 2007)