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 $\bigcup_k H_k \subset \mathcal{H}$ is dense in $\mathcal{H}$ with respect to the $C^\infty$ 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)