1031-58-105 **Duong H. Phong**, **Jian Song*** (jsong@math.jhu.edu), **Jacob Sturm** and **Ben Weinkove**.

The Kahler-Ricci flow and the $\bar{\partial}$ operator on vector fields.

We prove that if the Mabuchi K-energy is bounded from below and if the lowest positive eigenvalue of the $\bar{\partial}^\dagger\bar{\partial}$ operator on smooth vector fields is bounded away from 0 along the Kahler-Ricci flow on a manifold of positive first Chern class, then the metrics converge exponentially fast in C^∞ to a Kahler-Einstein metric. We also show that the Kahler-Ricci flow converges to a Kahler-Einstein metric assuming positive bisectional curvature and certain stability conditions. This is a joint work with D.H. Phong, J. Sturm and B. Weinkove. (Received August 06, 2007)