1138-53-234   **Xiuxiong Chen** and **Jingrui Cheng*** (`jrcheng@math.wisc.edu`), 480 Lincoln Drive, Madison, WI 53706. *Estimates of constant scalar curvature Kähler metrics with applications to existence.*

We develop new apriori estimates for scalar curvature type equations on a compact Kähler manifold. As applications, we show that properness of K-energy with respect to the L^1 geodesic distance implies the existence of constant scalar curvature Kähler metrics. We also show that the non-existence of constant scalar curvature Kähler metrics is equivalent to K-energy being asymptotically non-increasing along some (weak)geodesic ray. This is joint work with Xiuxiong Chen. (Received February 10, 2018)