1118-53-180   **Tristan C Collins** and **Gabor Szekelyhidi*** (`gszekely@nd.edu`). *Sasaki-Einstein metrics and K-stability.*

We show that a polarized affine variety admits a Ricci flat Kähler cone metric, if it is K-stable. This generalizes Chen-Donaldson-Sun's solution of the Yau-Tian-Donaldson conjecture to Kähler cones, or equivalently, Sasakian manifolds. As an application we show that the five-sphere admits infinitely many families of Sasaki-Einstein metrics. (Received January 31, 2016)