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Sean Timothy Paul* (stpaul@wisc.edu), 480 Lincoln Drive, Madison, WI 53706. *A proof of the Tian-Yau-Donaldson conjecture for general polarized manifolds with finite automorphism group.*

We show that the Mabuchi energy of any polarized manifold (X, L) is (bounded below) proper on the full space of Kähler metrics in the class $c_1(L)$ if and only if (X, L) is asymptotically (semi)stable. It now follows from work of Xiuxiong Chen and Jinguri Cheng that X admits a cscK metric in $c_1(L)$ iff (X, L) is asymptotically stable, provided that the group $\text{Aut}(X, L)$ is finite (Received August 27, 2021)