

1115-58-33

Tamas Darvas* (tdarvas@math.umd.edu) and **Yanir A. Rubinstein.** *Tian's properness conjectures and Finsler geometry on the space of Kahler metrics.*

In the 90's, Tian introduced a notion of properness in the space of Kähler metrics in terms of Aubin's J-energy for Mabuchi's K-energy and formulated several conjectures on the relation between properness and Kähler-Einstein metrics. In joint work with Y. Rubinstein we disprove one of these conjectures, and prove the remaining ones. Our results extend to a variety of canonical metrics, in particular Kähler-Einstein edge metrics and Kähler-Ricci solitons. Lastly, we formulate a corresponding conjecture for constant scalar curvature metrics and reduce it to a regularity question on minimizers of the K-energy. (Received August 12, 2015)