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Mijia Lai* (mijialai@gmail.com), 915 Hylan Building, University of Rochester, PO Box 270138, Rochester, NY 14627. *Convergence of J-flow on Kähler surface: a boundary case.*

Given a compact Kähler manifold M of complex dimension 2 with two Kähler metrics ω and χ , J -flow is defined as:

$$\frac{\partial \varphi}{\partial t} = \frac{1}{2} - \frac{\chi_\varphi \wedge \omega}{\chi_\varphi^2}.$$

It is shown by Weinkove that the flow converges smoothly to the stationary point if and only if $[\chi - \omega] > 0$. Later on, Song and Weinkove showed the solution (C^2 -norm) must blow up if $[\chi - \omega] > 0$ does not hold. In this talk, we give a more precise convergence picture when χ degenerates to the boundary of the condition $[\chi - \omega] > 0$. As an application, for Kähler surfaces of $c_1(M) < 0$, the cone of the Kähler classes whose Mabuchi energy is proper is enlarged from a previously known open cone to a new set containing some of its boundary points. This is a joint work with Hao Fang, Jian Song and Ben Weinkove. (Received July 04, 2012)