1086-37-391 **Hexi Ye*** (hye4@uic.edu), 851 S Morgan Street, Room 322, Chicago, IL 60607. *Rational Functions with Identical Measure of Maximal Entropy.*

We discuss when two rational functions f and g can have the same measure of maximal entropy. The polynomial case was completed by (Beardon, Levin, Baker-Eremenko,$\cdots$, 1980s-90s), and we address the rational case following Levin-Prytycki (1997). We show: for generic f of degree $d \geq 3$, if $\mu_f = \mu_g$, then f and g share an iterate ($f^n = g^m$ for some n and m), under further generic condition, $\mu_f = \mu_g$ implies that $g = f^n$ for some $n \geq 1$. For generic $f \in Rat_2$, $\mu_f = \mu_g$ implies that for some $n \geq 1$, $g = f^n$ or $\sigma_f \circ f^n$, where σ_f permutes two points in each fiber of f. And we construct examples of f and g with $\mu_f = \mu_g$ such that $f^n \neq \sigma \circ g^m$ for any $\sigma \in PSL(2, C)$ and $m, n \geq 1$. (Received August 28, 2012)