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Rugang Ye* (yer@math.ucsb.edu), Department of Mathematics, University of California, Santa Barbara, CA 93117. *Nonlinear Energy Integrals, Entropy Functionals and The Ricci Flow on Noncompact Manifolds.*

In this talk we'll present a priori estimates for nonlinear energy integrals for solutions of the (generalized) heat equation on complete noncompact manifolds. Using these estimates, we extend monotonicity of entropy functionals for the Ricci flow (such as the F-functional and the W-functional of Perelman, and the log entropy functional due to the speaker) to noncompact, complete manifolds. The logarithmic Sobolev inequality, the Sobolev inequalities and the kappa-noncollapsing estimates along the Ricci flow on noncompact manifolds follow as consequences. (Received March 09, 2008)