Rate of Entropy Extraction in Compressible Turbulence.\textsuperscript{1} MAHESH BANDI, WALTER GOLDBURG, Department of Physics and Astronomy, University of Pittsburgh, JOHN CRESSMAN, Krasnow Institute, George Mason University — The rate of change of entropy is measured for a system of particles floating on the surface of a fluid maintained in a turbulent steady state. This rate of entropy $\dot{S}$ equals the time integral of the two point temporal velocity divergence correlation function with a negative prefactor. The measurements satisfactorily agree with the sum of Lyapunov exponents (Kolmogorov-Sinai entropy rate) measured from previous simulations, as expected of dynamical systems that are very chaotic (Sinai-Ruelle-Bowen statistics).

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