

Abstract Submitted  
for the MAR06 Meeting of  
The American Physical Society

**Rate of Entropy Extraction in Compressible Turbulence.**<sup>1</sup> 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).

<sup>1</sup>This work is supported by the NSF (Grant No. DMR-0201805).

Walter Goldberg  
Department of Physics and Astronomy, University of Pittsburgh

Date submitted: 29 Nov 2005

Electronic form version 1.4