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Multifractal particle distribution in compressible turbulence on a free surface.[1] WALTER GOLDBURG, MAHESH BANDI, Department of Physics and Astronomy, University of Pittsburgh, JOHN CRESSMAN, Krasnow Institute, George Mason University — The distribution of particles in compressible turbulence on a free surface is inhomogeneous. The floaters flee regions of fluid up-wellings and cluster into ridge-like structures near fluid down-wellings. The concentration of floaters is measured on the surface of a large tank of turbulently stirred water. The multifractal structure of the clusters is reflected in the moments of particle concentration. The results are compared with recent work of Bec *et.al.* [J. Bec, K. Gawedzki and P. Horvai, Phys. Rev. Lett., 92, 224501 (2004)] conducted on synthetic velocity fields that follow the compressible Kraichnan model.

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Walter Goldburg
Department of Physics and Astronomy, University of Pittsburgh

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