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Rank-Ordered Multifractal Analysis of Probability Distributions in Fluid Turbulence CHENG-CHIN WU, UCLA, TIEN CHANG, MIT — Rank-Ordered Multifractal Analysis (ROMA) was introduced by Chang and Wu (2008) to describe the multifractal characteristic of intermittent events. The procedure provides a natural connection between the rank-ordered spectrum and the idea of one-parameter scaling for monofractals. This technique has successfully been applied to MHD turbulence simulations and turbulence data observed in various space plasmas. In this paper, the technique is applied to the probability distributions in the inertial range of the turbulent fluid flow, as given in the vast Johns Hopkins University (JHU) turbulence database. In addition, a refined method of finding the continuous ROMA spectrum and the scaled probability distribution function (PDF) simultaneously is introduced.

Tien Chang
MIT

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