Log-Compound-Poisson Distribution Model of Intermittency in Turbulence

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The log-compound-Poisson distribution for the breakdown coefficients of turbulent energy dissipation is proposed, and the scaling exponents for the velocity difference moments in fully developed turbulence are obtained, which agree well with experimental values up to measurable orders. The underlying physics of this model is directly related to the burst phenomenon in turbulence, and a detailed discussion is given in the last section.

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