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**On the issue of monotonicity of structure function exponents** MOGENS MELANDER, BRUCE FABIJONAS, SMU — Structure functions in the inertial range of isotropic turbulence are generally believed to be power laws in the length scale. In the presence of intermittency, the exponent varies nonlinearly with the order  $p$  of the structure function. It is a known mathematical fact that the exponent must be a concave down function of  $p$ . The literature moreover suggests that the exponent should increase monotonically with  $p$ . It is well known that experimental and computational evidence support that suggestion in the sense that no violation of the monotonicity has been observed. In this talk, we point out that the theoretical support for monotonicity crumples upon close scrutiny. Moreover, we present a series of numerical experiments with given log-normal exponents (not monotone) showing that astronomical ensemble sizes are required to capture the decreasing exponents. For realistic ensemble sizes, one is misled to believe the exponents follow log- Poisson statistics.

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