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Numerical scaling analysis of the small-scale structure of turbulence PANAGIOTIS STINIS, Department of Mathematics, Lawrence Berkeley National Laboratory, CA 94720, ALEXANDRE CHORIN, Department of Mathematics, University of California, Berkeley CA 94720 — We show how to use numerical methods within the framework of successive scaling to analyse the microstructure of turbulence, in particular to find inertial range exponents and structure functions. The methods are first calibrated on the Burgers problem and are then applied to the 3D Euler equations. Known properties of low order structure functions appear with a relatively small computational outlay; however, more sensitive properties cannot yet be resolved with this approach well enough to settle ongoing controversies.

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