1032-76-148 **Alexey Cheskidov** (acheskid@umich.edu), Department of Mathematics, University of Michigan, Ann Arbor, MI 48109, **Charles R Doering** (doering@umich.edu), Department of Mathematics, University of Michigan, Ann Arbor, MI 48109, and **Nikola P Petrov*** (npetrov@ou.edu), Department of Mathematics, University of Oklahoma, Norman, OK 73019. *Energy dissipation in low-wavenumber-forced and fractal-forced flows.*

We derive rigorous bounds on the turbulent energy dissipation rate in incompressible fluid flows driven by two kinds of forces. First we consider a time-dependent low-wavenumber forcing widely used in direct numerical simulations of turbulence and derive upper and lower bounds of the dissipation rate as a function of the Reynolds number. Secondly, we study the problem of flow driven by "fractal" forces, i.e., forces with decaying slowly Fourier spectra. (Received August 20, 2007)