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Turbulence structure and scalar diffusion in uniformly sheared flow distorted by a grid[1] STAVROS TAVOULARIS, JOVAN NEDIC, University of Ottawa — Uniformly sheared flow, generated in a wind-tunnel by a shear generator, was let to develop a self-similar, strongly anisotropic turbulence structure and then it was disturbed by grids having square meshes with spacings larger than, comparable to and smaller than the spacing of the shear generator; a "fractal" grid was also used. The multi-scale, non-equilibrium turbulence structure downstream of each grid was documented and differences from the structures of the undisturbed shear flow and grid turbulence were identified. In addition, heat was injected passively from a line source located downstream of the grid and the growth of the heated plume under different conditions was examined.

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