**The properties of elastic turbulence in semi-dilute polymer solutions** YONGGUN JUN, Physics of Complex Systems, Weizmann Institute of Science, VICTOR STEINBERG — We studied elastic turbulence in Karman swirling flow of semi-dilute polymer solution. The concentrations of polymer solution used in the experiment were 100, 300, 500, 700, and 900 ppm, and the velocity fields to calculate the rms of the gradients of the tangential velocity, $\omega_{rms}$, were obtained using PIV. First we checked the saturation of $\omega_{rms}$ in the bulk, which represents the saturation of elastic stress. We found that $Wi_{bulk} = \omega_{rms}\tau$ saturates and approaches to unitary value as the polymer concentration increases. Here $\tau$ is the longest polymer relaxation time. Also we studied existence of the velocity boundary layer which is related to boundary layer of elastic stresses of elastic turbulence. The thickness of the boundary layer is the decreasing function of polymer concentration near the rotating upper plate but independent of concentrations near the wall.

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