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**Beyond Drag Reduction: Bulk Turbulence in Dilute Polymer Solutions** NICHOLAS OUELLETTE, HAITAO XU, KELKEN CHANG, EBERHARD BODENSCHATZ, Max Planck Institute for Dynamics and Self-Organization and Cornell University — Near boundaries, turbulent flows in solutions containing small amounts of long-chain polymers are known to show a significant reduction in turbulent drag compared to their Newtonian counterparts. We have investigated instead the effects of polymers on bulk turbulence, far away from any boundaries. We report measurements in an intensely turbulent water flow containing small amounts of a high molecular weight polyacrylamide using a versatile particle tracking technique capable of providing simultaneous Eulerian and Lagrangian data. We show that the Richardson cascade is strongly modified even with very small concentrations of polymers. We will present the effects of varying both the Reynolds number and the polymer concentration. This work was supported both by the National Science Foundation and by the Max Planck Society.

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