

Abstract Submitted
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Enhanced and Reduced Heat Transport in Turbulent Thermal Convection with Polymer Additives¹ PING WEI, RUI NI, KE-QING XIA, Department of Physics, The Chinese University of Hong Kong — We present an experimental study of heat transport in turbulent Rayleigh-Bénard (RB) convection with polymer additives in convection cells both with smooth and rough surfaces on the top and bottom solid conductive plates. For the cell with smooth plates, a reduction of the measured Nusselt number (Nu) was observed. Furthermore, the amount of Nu- reduction increases with increasing polymer concentration (c), reaching $\sim 12\%$ for $c = 120$, ppm and an apparent saturation of the Nu-reduction thereafter. For the cell with rough plates, however, an enhancement of Nu of was observed when the polymer concentration is greater than 120.

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Ke-Qing Xia
Department of Physics, The Chinese University of Hong Kong

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