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Giant Hydrodynamic Fluctuations Due to Coriolis Redistribution of Turbulent Kinetic Energy CHARLES PETTY, ANDRE BENARD, Michigan State University — The influence of chemical reaction on turbulent mixing of a chemically reactive constituent in a rotating channel flow indicates that the transverse transport of the reactive constituent is mitigated by a coupling between the shear component of the Reynolds stress and the longitudinal component of the mean flux of the reactive constituent. In the region of zero intrinsic vorticity, the dispersion coefficient in the cross flow direction is significantly larger than the dispersion coefficient in the spanwise direction. The dispersion coefficient in the longitudinal direction is relatively small. Koppula, K.S., A. Bénard, and C. A. Petty, 2011, "Turbulent Energy Redistribution in Spanwise Rotating Channel Flows", Ind. Eng. Chem. Res., 50 (15), 8905-8916.

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