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Investigation of internal intermittency by way of spectral moments[1] SAMUEL LORTIE, LAURENT MYDLARSKI, McGill University — The analysis of turbulence data using higher-order spectral moments is relatively uncommon despite the use of such methods in other fields of physics and engineering. In this study, we investigate the use of higher-order spectral moments to infer the effects of internal intermittency in multiple turbulent flows. We present spectral moments of both turbulent velocity and passive scalar (temperature) fields and offer a comparison of their intermittent behaviour. The experimental data analysed herein includes measurements of homogeneous, isotropic high-Reynolds-number grid turbulence, heated wakes of a cylinder, a heated turbulent jet, and turbulent channel flow. We focus on third- and fourth-order spectral moments using the definitions first proposed by Dwyer (*J. Acoust. Soc. Am.*, 1983), as they are sensitive to transients and provide insight into the study of internal intermittency. Moreover, we confirm the dependence of internal intermittency on Reynolds number (e.g. Sreenivasan and Antonia, *Ann. Rev. Fluid Mech.*, 1997) and the higher degree of scalar field internal intermittency, as compared to that of the velocity field (e.g. Warhaft, *Ann. Rev. Fluid Mech.*, 2000).

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