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Spreading and decay of axisymmetric drag wakes: theory SCOTT WUNSCH, Johns Hopkins University, THEODORE D. DRIVAS, Princeton University, D. CURTIS SAUNDERS, Johns Hopkins University — The spreading and decay of drag wakes is of interest to a wide variety of applications in geophysics and engineering, such as the wakes of mountains, seamounts, windfarms, and buildings. For axisymmetric bodies, the classical self-similar scaling law formulated by Swain (1929) has long been widely accepted (Tennekes and Lumley 72) and used to describe the wakes of spheres (Bevilaqua and Lykoudis 78) and slender bodies (Pao & Lin 73). However, recent experiments have cast doubt on the classical decay law (Bonnier and Eiff 02; Nedic. Vassilicos, and Ganapathisubramani 13), indicating more rapid wake spreading and decay than the classical result. Here, new laboratory data from a dimpled sphere (Re = 50,000) are compared with various theoretical explanations for non-classical self-similar wake decay.

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