Highly-symmetric travelling waves in pipe flow\textsuperscript{1} CHRIS PRINGLE, University of Bristol, YOHANN DUGUET, KTH Mechanics, RICH KERSWELL, University of Bristol — The recent theoretical discovery of finite-amplitude travelling waves in pipe flow has re-ignited interest in the transitional phenomena that Osborne Reynolds studied 125 years ago. Despite all being unstable, these waves are providing fresh insight into the flow dynamics. We describe two new classes of travelling wave which while possessing more restrictive symmetries than the previously found travelling waves of Faist & Eckhardt (2003) and Wedin & Kerswell (2004) seem to be more fundamental to the hierarchy of exact solutions. They exhibit much higher wall-shear stresses and appear at notably lower Reynolds numbers.

\textsuperscript{1}The support of EPSRC and Marie-Curie IntraEuropean Fellowships are greatly acknowledged.

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Date submitted: 04 Aug 2008

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