# The role of invariant solutions in organising shear flow turbulence

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**Abstract**

In this talk we will review some of the scenarios in which invariant solutions, namely equilibria, travelling waves and periodic orbits, have aided in the understanding of transition to turbulence and the chaotic dynamics of various types of shear flows. Using 2D Kolmogorov flow as an exemplar we show the utility of the approach at tackling the problem of sustained turbulence and present the outlook for the methodology for fully 3D flows, at increasing Reynolds numbers and in situations with full spatio-temporal complexity.