

Title: The onset of turbulence in pipe flow

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The transition point from laminar to turbulent pipe flow is widely discussed in the literature and often used to introduce the Reynolds number and dynamic similarity.

Yet the actual values quoted for this supposed critical point vary widely and almost any number in the range of $1700 < Re < 3000$ can be found. By carrying out extensive and highly accurate laboratory experiments in combination with fully resolved direct numerical simulations we are able to finally determine the actual value of this critical point as well as the nature of the transition.