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On the absence of turbulence in exact solutions of the Navier-Stokes equation and implications of a quantum interpretation of turbulence AMADOR MURIEL, Department of Computer Science, University of the Philippines — There have been several papers published which show exact solutions of the Navier-Stokes equation [A. Muriel, Results in Physics 1, 2 (2011), A. Muriel, Physics Letters A 378, 2529 (2014), A. Muriel, Results in Physics 12/2015, A. Muriel, Results in Physics 6, 29 (2016)]. None of the solutions admit any possibility of turbulence. It is strongly suggested that the Navier-Stokes equation is not the correct problem definition for turbulence. Yet, by contrast, in a simple example, it s shown that turbulence can result quite directly by using two or more species of fluids. The species are in fact identical atoms with different quantum states, provoking the strong suggestion that a plausible explanation for the origin of turbulence is quantum mechanical [Muriel CFD Letters Vol. 2(3) 2010]. This suggestion is heavily supported by actual modern pipe flow experiments [Muriel, Quantum Theory of Turbulence, Harvard Book Store (2011),which may be downloaded from (Muriel, ResearchGate)}The most general exact solutions of the Navier-Stokes equation will be displayed. In addition, experiments supporting a quantum interpretation will be reviewed.

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