

Group 1

Fernando's Problem 1:

(A) Using the Fourier transformation, we can get the spectrum distribution of the $U(t)$. If the $U(t)$ just has finite number spectrums, we can say the flow is not turbulent, otherwise, we can ascertain that the flow is turbulent.

(B) To show the flow is isotropic, we can choose several rotation matrices (like $30^\circ, 45^\circ, 60^\circ, 90^\circ, 135^\circ, \dots$) to time the given velocity field, and then find their correlation functions. If they are all correlated, we can say that the flow is isotropic.