

Abstract

The Tollmien-Schlichting (T-S) waves play a key role during the early stage of the boundary layer transition. In a breakthrough work (Duke Math Jour, 165(2016)), Grenier, Guo and Nguyen gave a first rigorous construction of the T-S waves of temporal mode for the incompressible fluid.

In this talk, we show two results about the Tollmien-Schlichting waves: 1. For the incompressible case, we confirm the existence of neutral curve by constructing stable and neutral stable Tollmien-Schlichting waves. 2. We construct the unstable Tollmien-Schlichting waves of both temporal and spatial mode to the linearized compressible Navier-Stokes system around the boundary layer flow in the whole subsonic regime.