

Abstract Submitted
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Direct Numerical Simulation of a Plane Transitional Wall Jet. O

RAMESH, Indian Institute of Science, Bangalore, JOEL VARGHESE, Iowa State University — A transitional plane wall jet is studied using direct numerical simulation. The presence of an inflectional point leads to the outer layer rolling up into vortices that interacts with the inner region resulting in a double array of counter rotating vortices before breakdown into turbulence. Past studies have focused on forced wall jet which results in shorter transition region and prominent vortical structures. In the present work, natural transition will be discussed by analysing the coherent structures and scaled frequency spectra. Clear hairpin like structures leaning downstream in the inner region(as in a boundary layer) and leaning upstream in the outerstream (as in a jet) are evident..

O Ramesh
Indian Institute of Science

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