Abstract Submitted
for the DFD13 Meeting of
The American Physical Society

Flow Structure over Moderate Swept Delta Wing: *Effects of Reynolds Number and Attack Angle* ILHAN OZTURK, MOHAMMADREZA ZHARFA, MEHMET METIN YAVUZ, Middle East Technical University — Recent investigations have revealed the appearance of a distinctive type of leading edge vortex, dual vortex structure, over simple delta wing planforms having moderate sweep angles. Flow over a moderate swept 45-degree wing has been investigated using laser illuminated smoke visualization, Laser Doppler Anemometry (LDA), and surface pressure measurements. The effects of Reynolds number and attack angles on dual vortex structure, vortex breakdown, and poststall regime are reported. The footprint of flow regimes on the surface of the planform is captured by the pressure measurements, and the lift performance of the wing is tried to be extracted. The relation between surface pressure fluctuations and near surface velocity fluctuations is investigated. The reattachment region of the separated shear layer on the surface, vortex breakdown, and stall regime are studied with considering the aforementioned relation, which will enlighten some of the aspects of the buffeting on the wing planform.

Ilhan Ozturk
Middle East Technical University

Date submitted: 01 Aug 2013 Electronic form version 1.4