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| **ARTICLE INFO** | | | **ABSTRACT** | | | |
| ***Article history:***  Received XX November 20XX  Received in revised form XX February 20XX  Accepted XX March 20XX  Available online XX March 20XX | | | The abstract should state briefly the purpose of the research, the principal results, and major conclusions. References and non-standard or uncommon abbreviations should be avoided in the abstract. The number of words should not exceed 350. | | | |
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**1. Introduction**

The first sentence should start here [1]. The last few decades have witnessed vast research on new types of heat transfer fluids, namely nanofluids. Nanofluid is a fluid that contains nanometer-sized solid particles. The nanofluid was introduced by Choi [2] and it has been proven to give better heat transfer efficiency compared to conventional fluids. Detailed reviews on the physical and thermal properties of nanofluids can be seen in review papers by several authors [3-5].

The second paragraph starts here. A nanofluid can be produced by dispersing metallic or non-metallic nanoparticles or nanofibers with a typical size of less than 100 nm in a base liquid.

**2. Methodology**

A model of VFE-2 model was designed and fabricated in the Universiti Malaysia wind tunnel under the Malaysian Ministry of Education grant, as shown in Figure 1 below [4]. The design was exactly based on the original profile of Chu and Lucking [6] as Figure 2.

A few years later, a new research group is formed to further investigate the flow structure on the blunt-edged delta wing, the team called as Vortex Flow Experiment (VFE-2). The main objective of the VFE-2 test was to validate the results of Navier-Stokes calculations and to obtain more detailed experimental data. The VFE-2 experiments were carried out for both sharp and blunt leading edge shape delta wing [1-3].



**Fig. 1.** Comparison of experimental measurement and Numerical studies above VFE-2 configurations at α=13° [2]



**Fig. 2.** UTM-LST delta wing VFE-2 profiles

Mat *et al*. [7] have performed comprehensive flow visualization studies on a blunt-edge delta wing. The primary vortex is developed at a certain chordwise position and progresses upstream with the angle of attack; however, there is no data in VFE-2 indicating that the vortex progressed up to the Apex region with the angle of attack increases.

**3. Results**

*3.1 Pressure Distribution*

This section discusses the results obtained from the surface pressure measurement study. The effects of angle of attack, Reynolds number, and leading-edge bluntness are discussed in the next sub-section.

*3.1.1 The effect of angle of attack*

The test configuration for this experiment is in Table 1. Nevertheless, for the experiment at Reynolds number of 2×106, the angle of attack was limited to α = 23° only.

**Table 1**

The values of Reynolds number and velocity

|  |  |
| --- | --- |
| Reynolds number, Re | Velocity, V |
| 1×106 | 18 m/s |
| 2×106 | 36 m/s |

To differentiate the effects of Reynolds number, the experiments were also performed at two speeds of 18 m/s and 36 m/s that corresponding to 1×106 and 2×106 Reynolds number, calculated from Eq. 1 and summarized in Table 1.

(1)

where the dynamic viscosity, μ, the density of air, 𝜌, and length, *x* were taken as 1.846 ×10-5 kg/ms, 1.18 kg/m3, and 0.874 m respectively.

**4. Conclusions**

The experimental data of the UTM-LST VFE-2 model at a high angle of attack is presented here. More experiments are needed to verify this complicated flow topology.

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