Direct Numerical Simulation of laminar separation bubbles O.N.
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ence — This work presents the DNS of laminar separation bubbles (LSB) that formed
over a flat plate due to an imposed pressure gradient. Mean flow parameters such
as mean velocity, static pressure distribution and the geometric parameters, such as
aspect ratio of the LSB, over the plate closely corresponds to those found in exper-
iments and literature. The locus of the inflection point of the mean velocity profile
was found to lie outside the dividing streamline and this is expected to correspond
to a convectively unstable bubble. A closer look of the LSB as when advects along
the reverse flow streamline adjacent to the wall suggest that turbulence progressively
decayed as one moved upstream. This is indicative of the phenomenon similar to
relaminarisation in this region, presumably due to the decrease in pressure along the
reverse flow streamline. The energy budget inside the dividing streamline showed
interesting trends and these will be discussed during the presentation. Furthermore,
the dynamics of free shear layer and nonlinearity will also be presented.

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