* Abstract
* Intro
  + Why is flat plate flow important?
  + What are the characteristics of flow round flat plate?
    - LE Separation
    - Transition in shear layer
    - Reattachment and development of turbulent boundary layer with increased near wall momentum due to turbulence injection from shear layer instability
    - Relaminarisation of reversed flow which then separates forming second bubble
    - Bubble increases shear in separated flow thus increase turbulence generation
  + What was aim of this study?
  + Outline of report structure
* Model Setup
  + Geometry
    - Influence of height
    - 2D acceptable as explain by Crompton
    - Plate angled to walls rather than Collie method as more faithful to Crompton setup
  + Boundary Conditions
    - Inlet velocity (Reynolds number)
    - Inlet Turbulence Conditions
    - Slip walls
    - Pressure outlet
  + Mesh
    - Polyhedral chosen for sudo random edge orientation in recirculation zone
    - First cell thickness chosen 1e-5 based on Collie, proved good (graph?)
    - Prism layer max height based on Crompton velocity profiles
    - Number of layers calculated based on desired growth rate (show equation)
    - Surface/Edge Size (based on Starr CCM+ best practice document) larger at boundaries
    - Issue with bad cells at tip, however small enough area to not affect solution
    - Fine and coarse grids generated by doubling and halving base size
      * Prism layer first cell thickness changed too, total height constant as function of BL height, number of layers changed to achieved same growth rate
  + Physics Models
    - Incompressible
    - Steady
    - Turbulence Models
      * K omega SST, should give best results based on Collie
      * Collie identified SST limiting TKE as one cause of inaccuracy so try with no scale limiter
      * Other possible error comes from blending into K epsilon away from wall, in this flow major shear layer away from wall which may not be accurately captured if in Kepsilon zone. Therefore try with pure Komega as well
      * Collie also identified inablitity to model transfer of energy from v to u fluctions as flow reattaches as a downfall of Komega or any isotrop turbulence model, therefore tried RSM however even worse results and non physical backflow before reattachment.
  + Solver
    - Coupled solver found to give faster and more consistent convergence
    - Also allowed for use of “Expert Initialisation”, initialises solution by solving euler flow on decreasingly coarse representations of grid.
    - CFL set to 100 with linear ramp from 1 over first 200 iterations.
  + Initial Conditions
* Results
  + Reattachment length
  + Velocity Profiles
  + Turbulence Profiles
  + Turbulence development in shear layer
* conclusions