

NASA LaRC CFL3D and FUN3D Contributions to HiLiftPW-1

C. L. Rumsey*

NASA LaRC, MS 128, Hampton VA 23681-2199

email: c.l.rumsey@nasa.gov, (757) 864-2165

E. M. Lee-Rausch[†]

NASA LaRC, MS 128, Hampton VA 23681-2199

email: E.Lee-Rausch@nasa.gov, (757) 864-8422

We intend to participate in the HiLiftPW-1, to be held June 26-27, 2010 in Chicago, IL. We plan to perform the following sets of computations on unadapted (fixed) grids:

1. Structured RANS set 1

- Code: CFL3D
- Grid: Str-OnetoOne-A-v1 (supplied by HiLiftPW-1 committee)
- Turbulence model: Spalart-Allmaras

2. Structured RANS set 2

- Code: CFL3D
- Grid: Str-OnetoOne-A-v1 (supplied by HiLiftPW-1 committee)
- Turbulence model: Menter SST

3. Structured RANS set 3 (time permitting)

- Code: CFL3D
- Grid: Str-OnetoOne-B-v1 (supplied by HiLiftPW-1 committee)
- Turbulence model: Menter SST

4. Unstructured RANS set 1

- Code: FUN3D
- Grid: Unst-Mixed-FromTet-Nodecentered-A-v1 (supplied by HiLiftPW-1 committee)
- Turbulence model: Spalart-Allmaras

5. Unstructured RANS set 2 (time permitting)

- Code: FUN3D
- Grid: Unst-Hex-FromOnetoOne-A-v1 (supplied by HiLiftPW-1 committee)
- Turbulence model: Spalart-Allmaras

Optional case 3 is not being computed.

CFL3D is a structured upwind-biased cell-centered RANS code,¹ and FUN3D is an unstructured upwind-biased node-centered RANS code.²

References

¹Krist S. L., Biedron R. T., and Rumsey C. L., "CFL3D User's Manual (Version 5.0)", NASA TM-1998-208444, June 1998.

²Anderson, W. K. and Bonhaus, D. L., "An Implicit Upwind Algorithm for Computing Turbulent Flows on Unstructured Grids," *Computers and Fluids*, Vol. 23, No. 1, 1994, pp. 1–22.

*Corresponding Author. Senior Research Scientist.

[†]Research Engineer.