

AePW-4 High-Angle Working Group Meeting



December 12, 2024

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Agenda, December 12



- AIAA SciTech 2025: Orlando, FL, Mini Workshop 1, Thursday, January 9
- AIAA Aviation 2025 in-person meeting
- Summer 2025: New BSCW Experiment
- AePW-4 website: <https://nescacademy.nasa.gov/workshops/AePW4/public>
- Presentation today:
 - 2D BSCW flutter analysis status, Pawel, Bret
 - 2D Flutter-Onset BSCW, Jeff Thomas, Duke
- Next meeting, February 13. (January meeting is canceled due to SciTech)
- AIAA Aviation 2026: DPW-8 and AePW-4 Workshop

[Schedule](#)[Notes](#)

Thu, Jan 09

Bayhill 29

9:30am - 11:30am (Eastern)

1711

[See in my timezone](#)**Location:** Bayhill 29

Summary of progress on the Eighth Drag Prediction and Fourth Aeroelastic Prediction Workshop, a joint effort between the Applied Aerodynamics and Structural Dynamics Technical Committees.

This interdisciplinary workshop will apply the expertise of both communities to transonic drag prediction, shock buffet characterization, transonic flutter prediction, high-speed fluid structure interaction, and aeroelastic deformation in support of CFD2030 grand challenge problems.

Updates will be given from each of seven working groups including 1.) Static Aeroelastic Deformation (DPW and AePW); 2.) Buffet (DPW and AePW); 3.) Source of Scatter in DPW-7 (DPW); 4.) Wind Tunnel Test Environments (DPW); 5.) High Alpha (AePW); 6.) High Deformation (AePW); and 7.) High Speed (AePW) with community discussion, questions, and answers to follow.

Panelists:

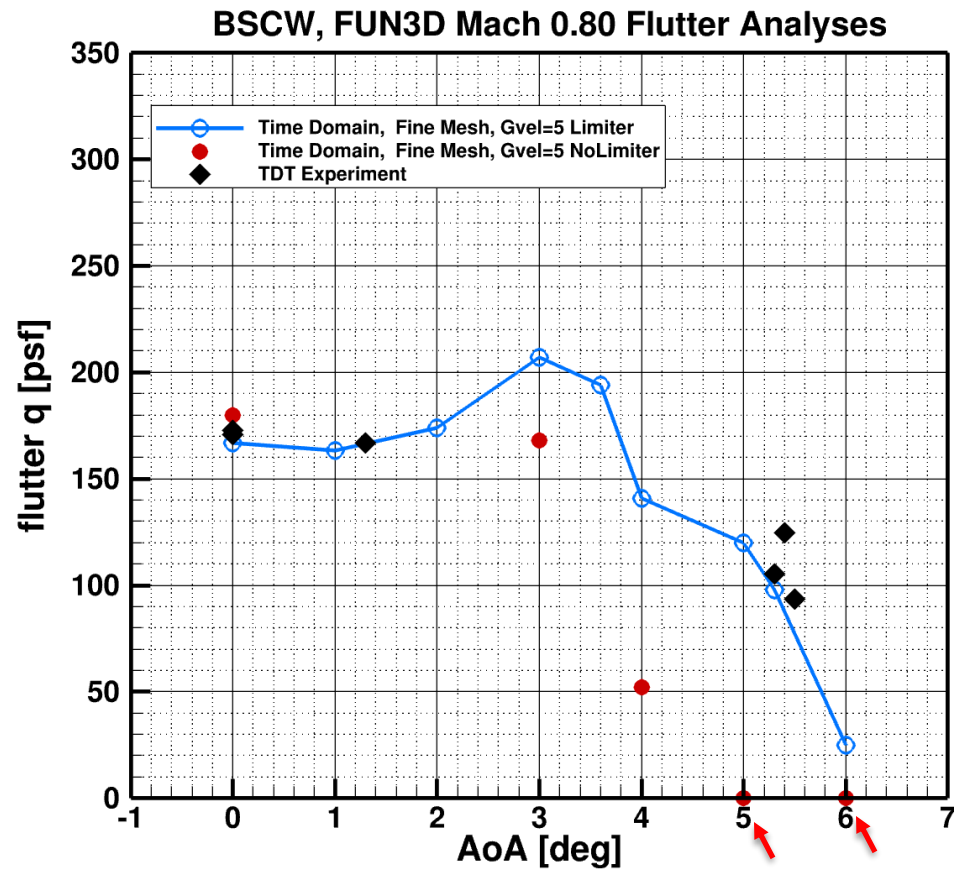
Pawel Chwalowski

Brent Pomeroy

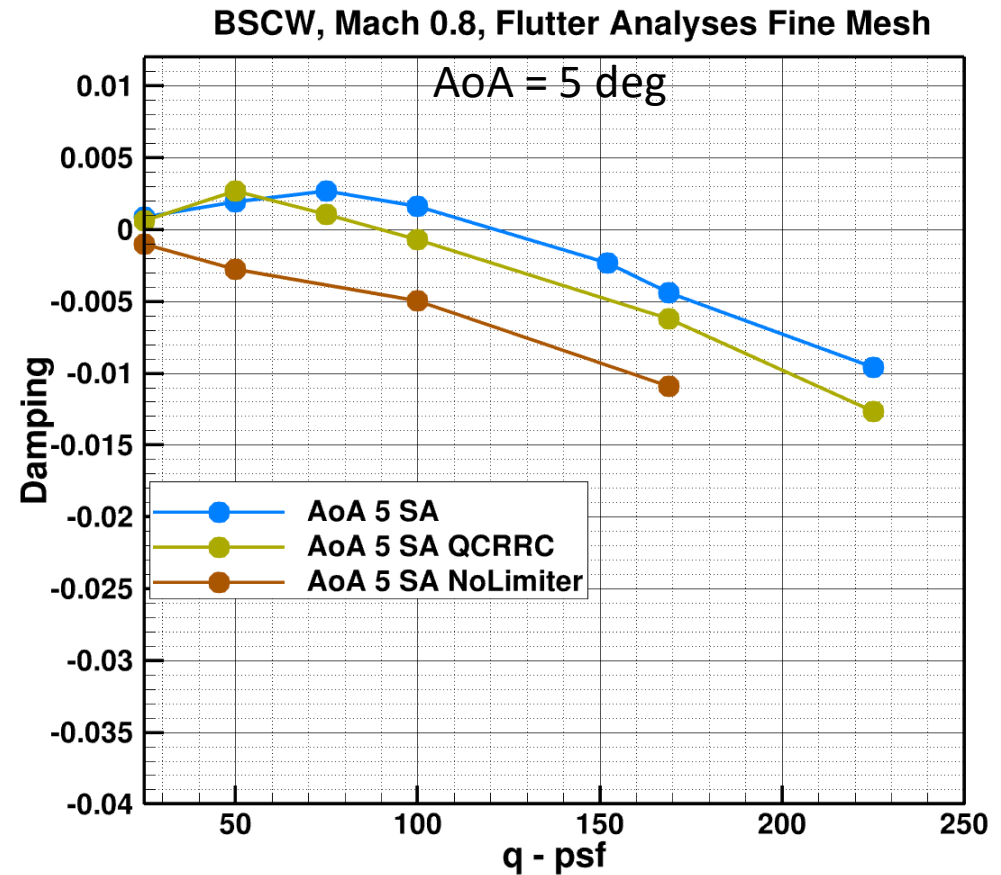
Ben Rider

Bret Stanford

Flutter, FUN3D SA with and without Venkat Limiter



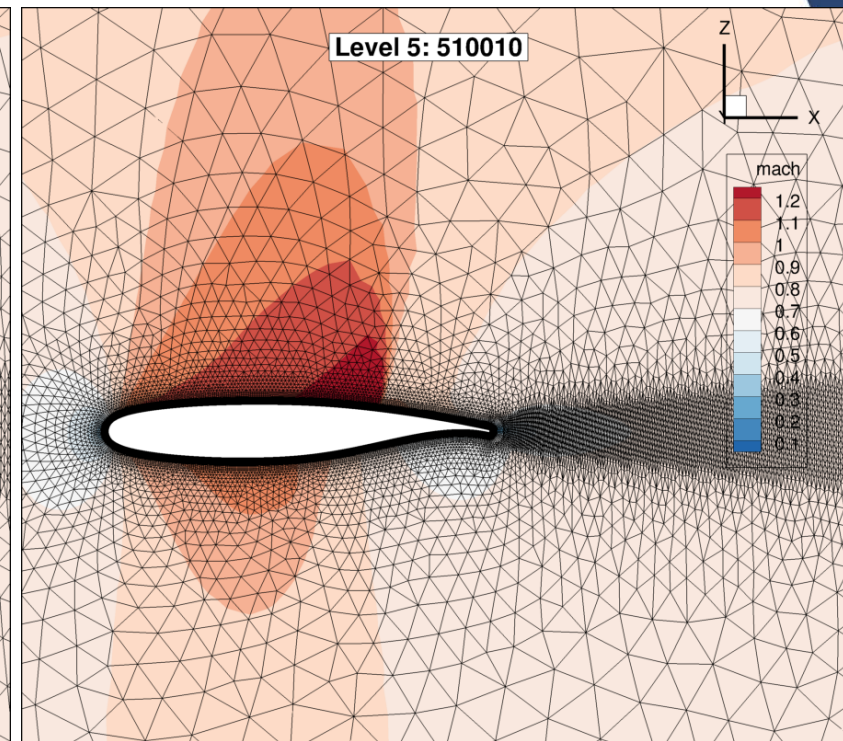
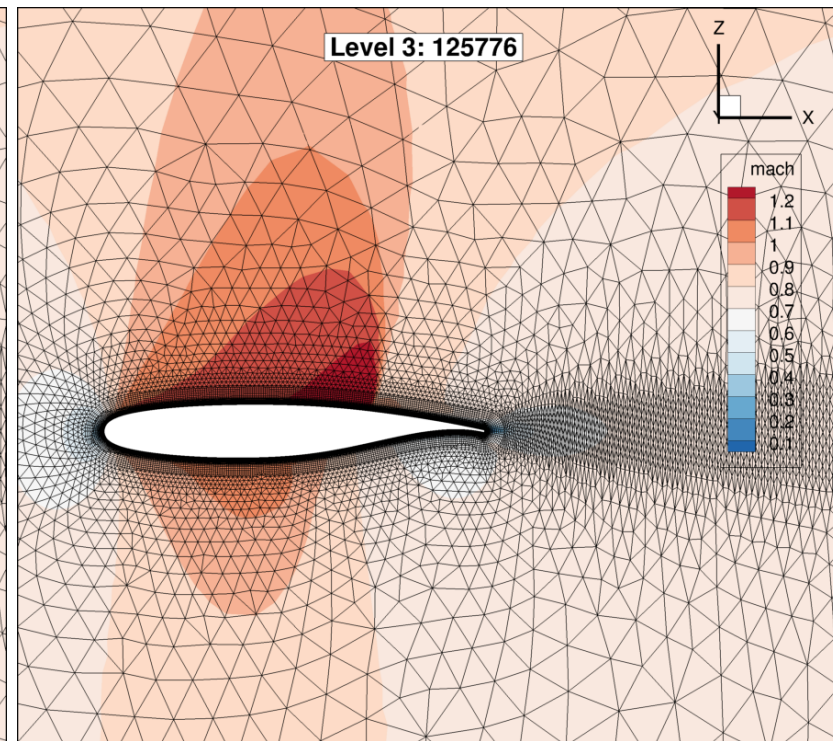
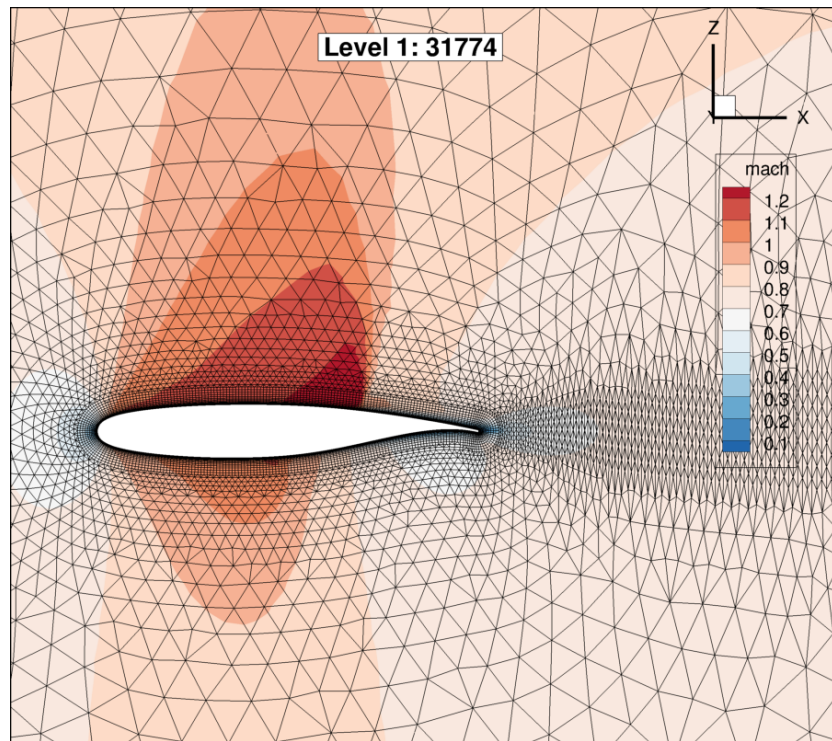
This only implies that flutter q cannot be computed



BSCW 2D vs 3D Aeroelastic Analysis, Mach 0.80 AoA = 0deg, q = 169 psf



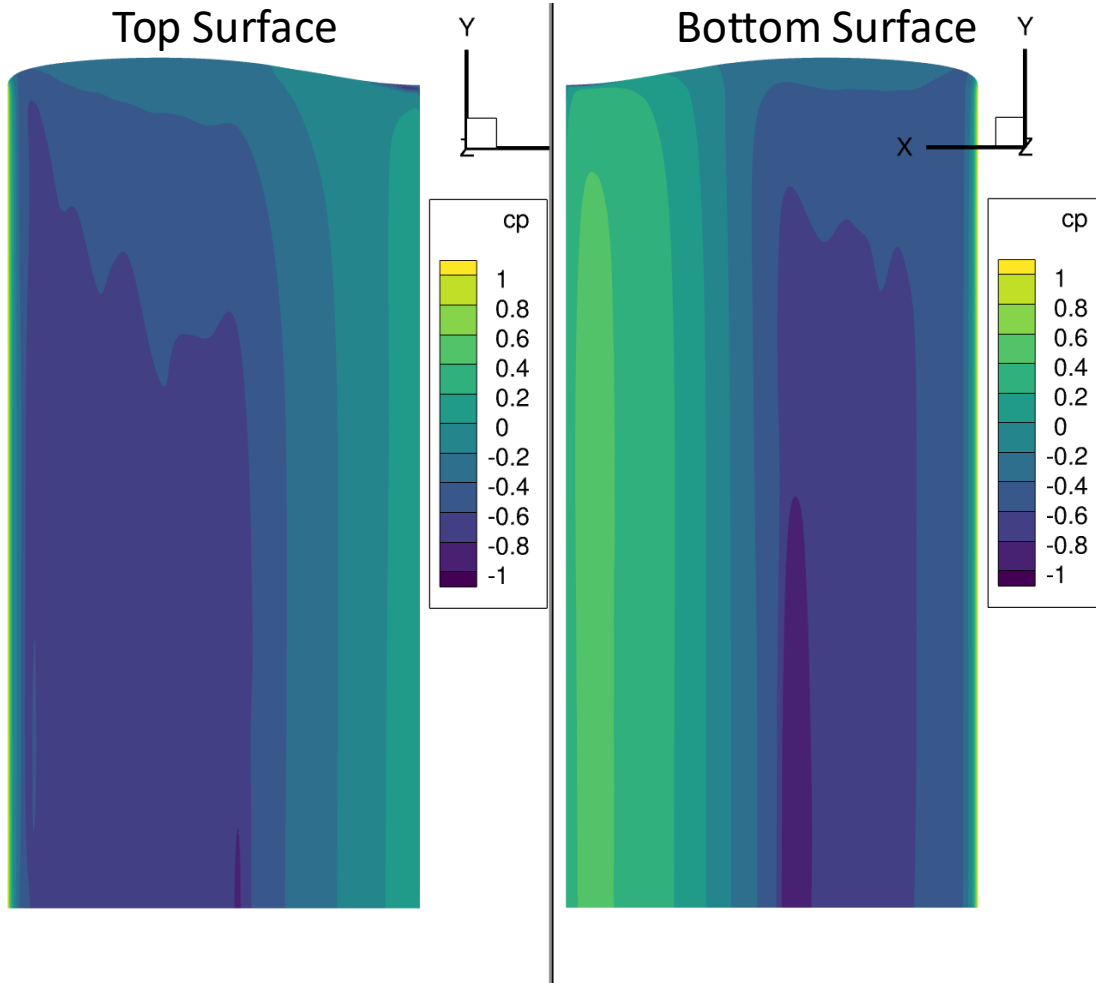
2D Coarse Mesh: 32-inch span wing with two symmetry planes



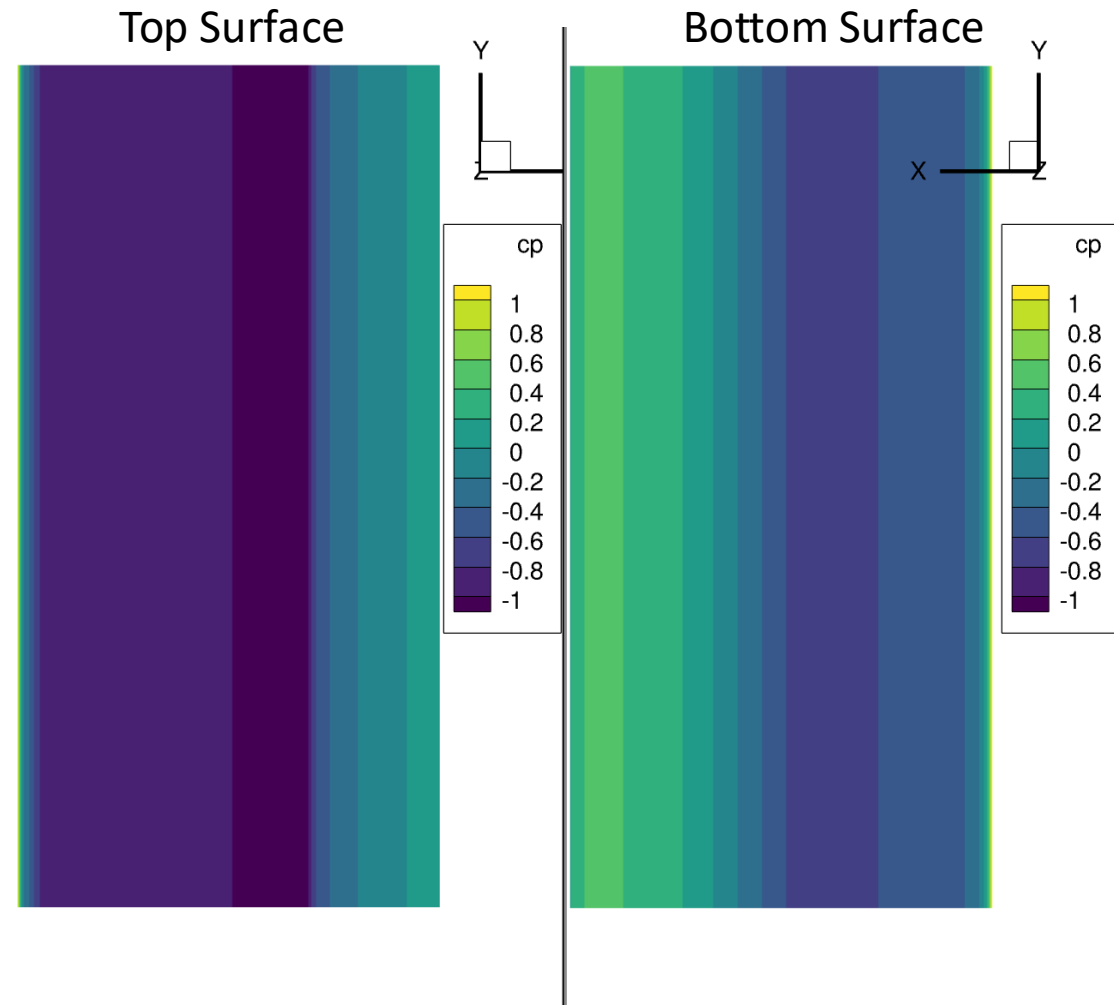
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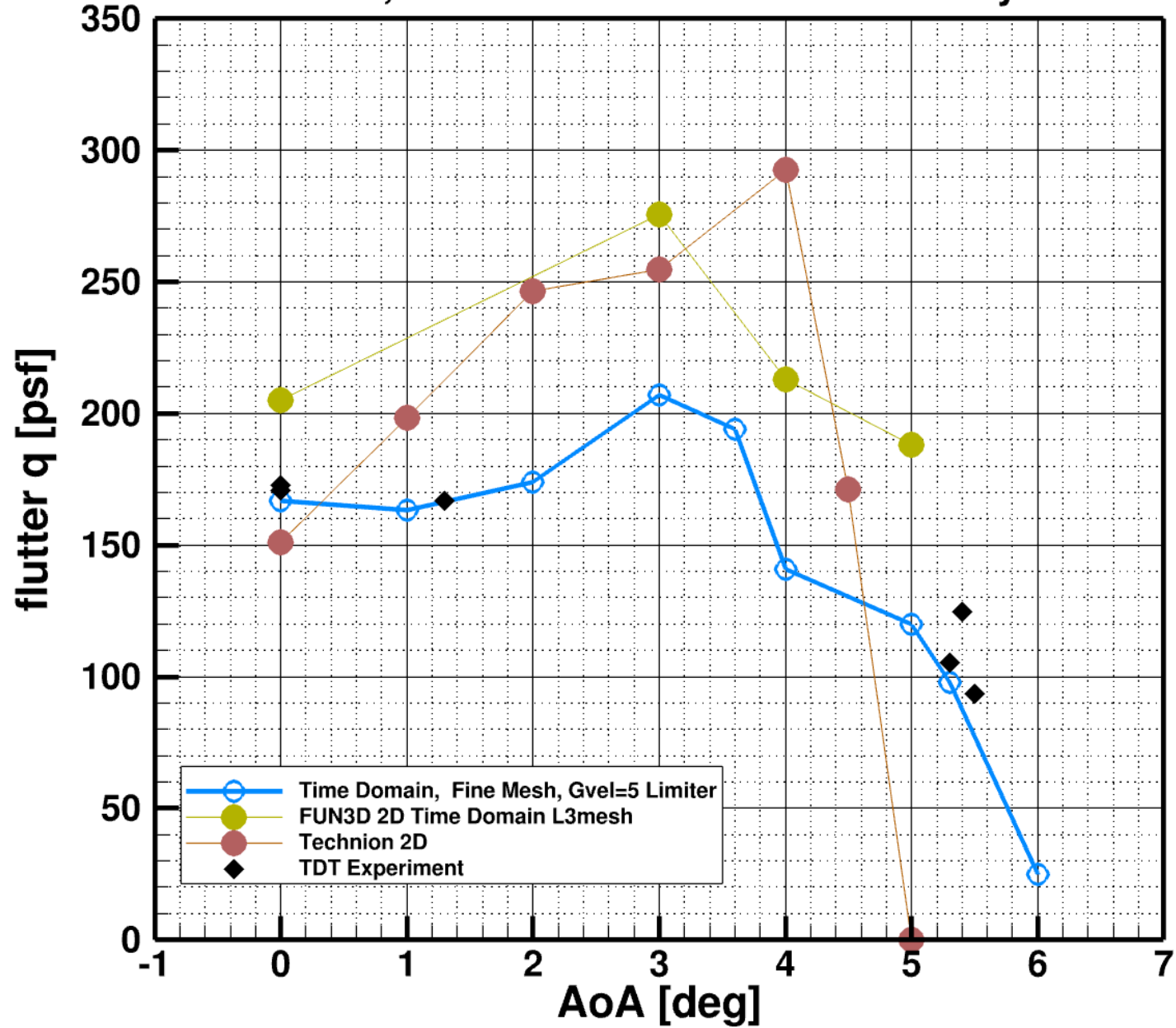
3D Wing



2D Wing

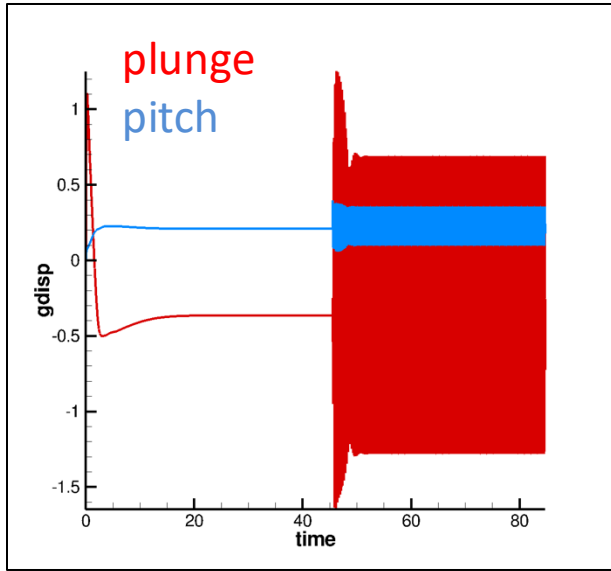


BSCW, FUN3D Mach 0.80 Flutter Analyses

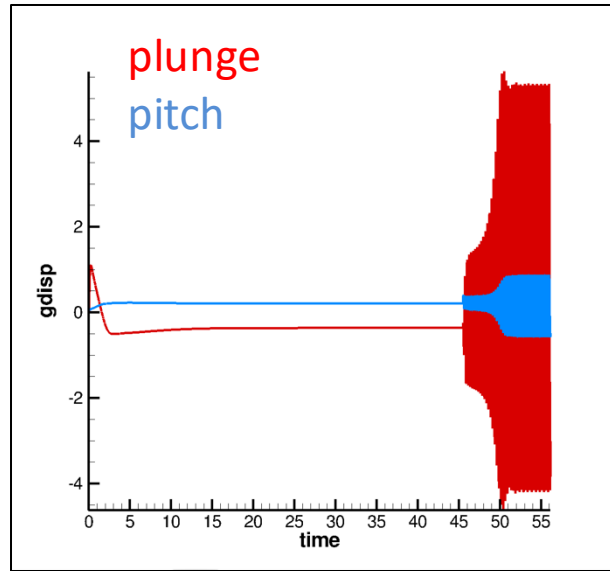




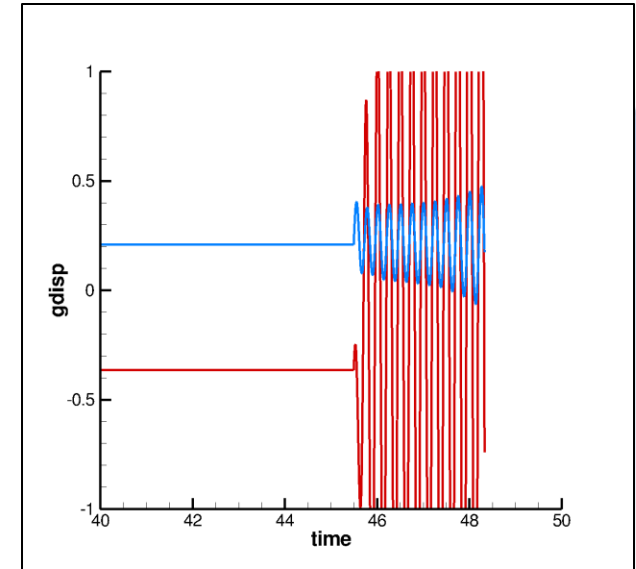
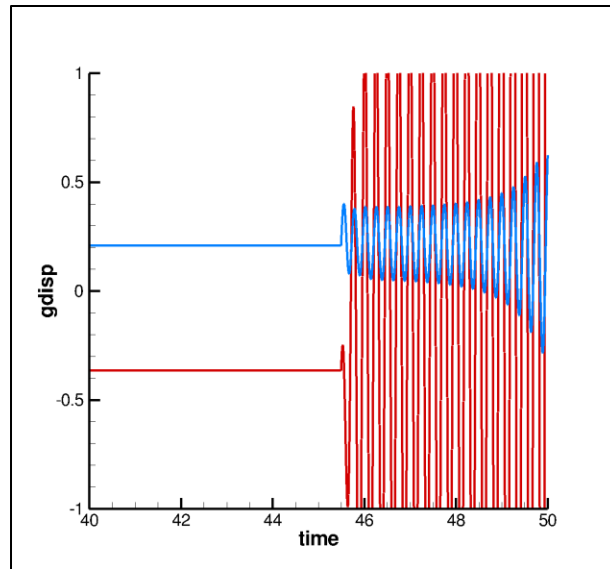
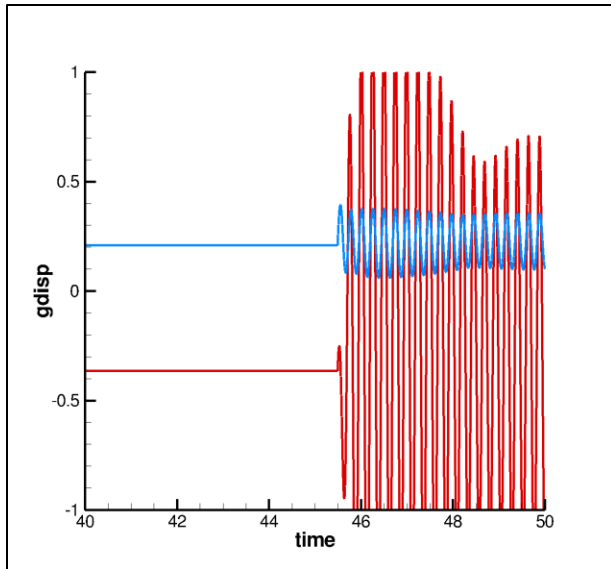
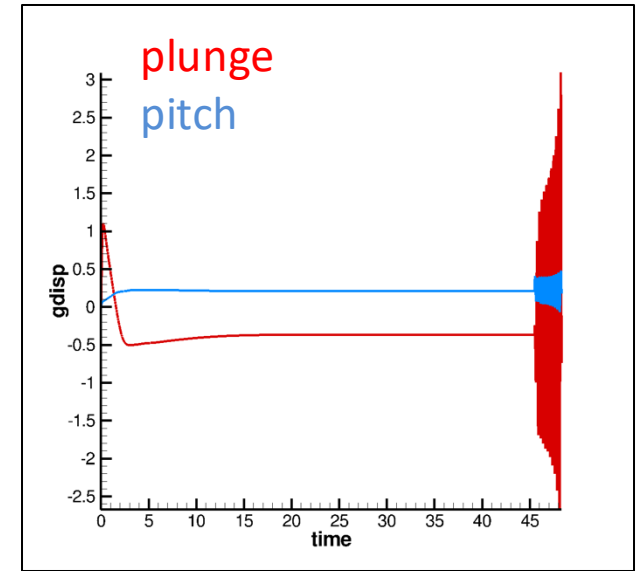
dt = 0.0002 seconds



dt = 0.00002 seconds



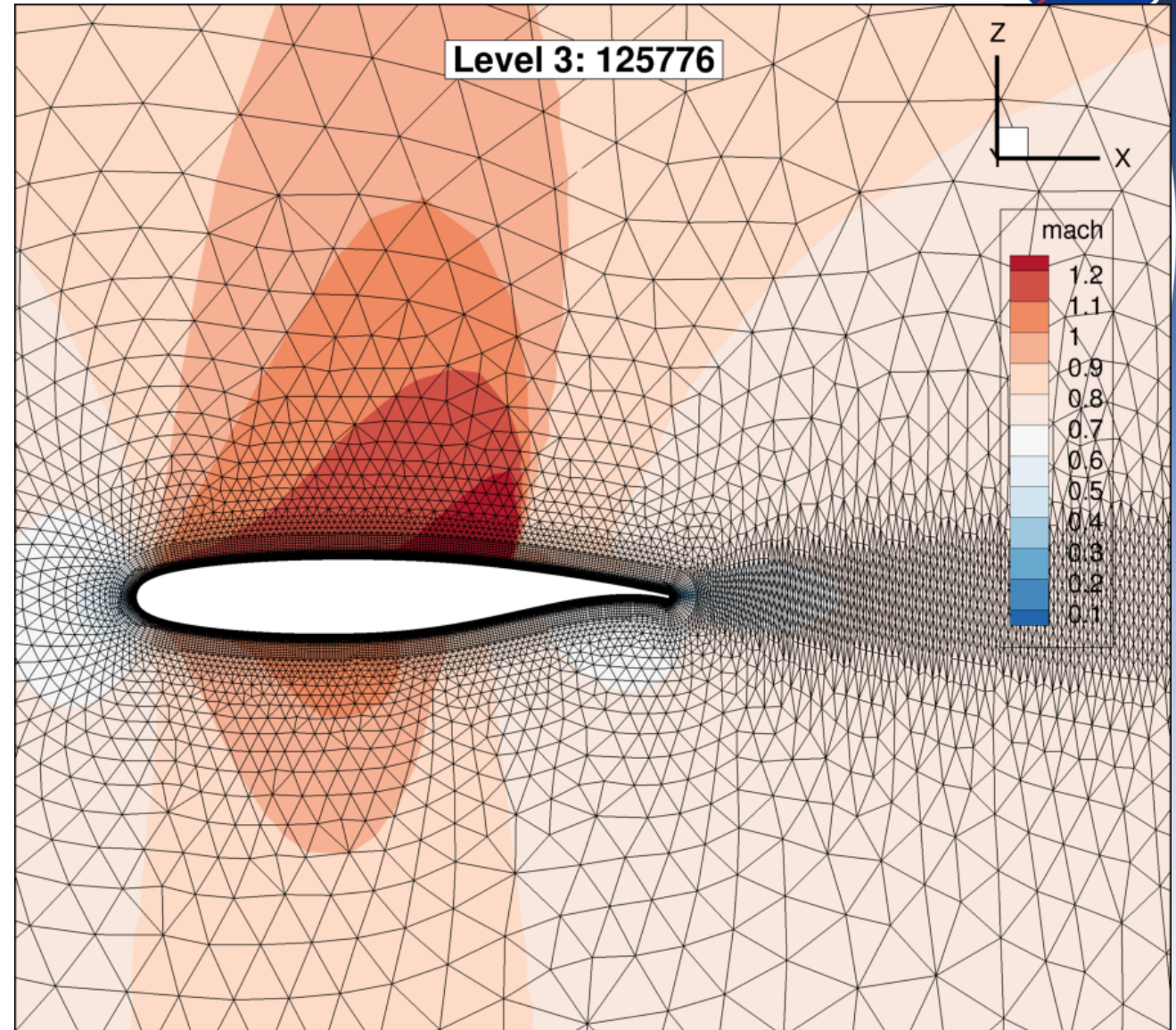
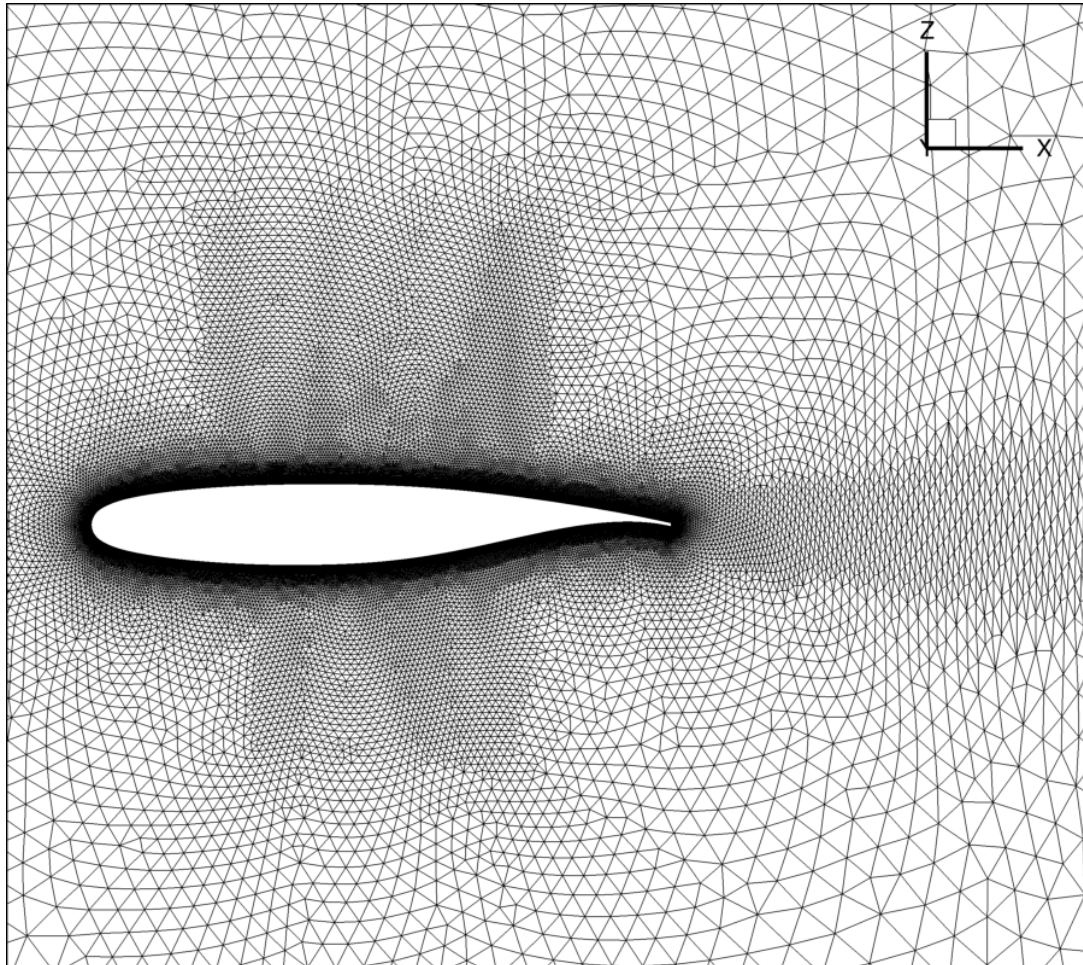
dt = 0.000002 seconds



BSCW 2D vs 3D Aeroelastic Analysis, Mach 0.80 AoA = 0deg, q = 169 psf



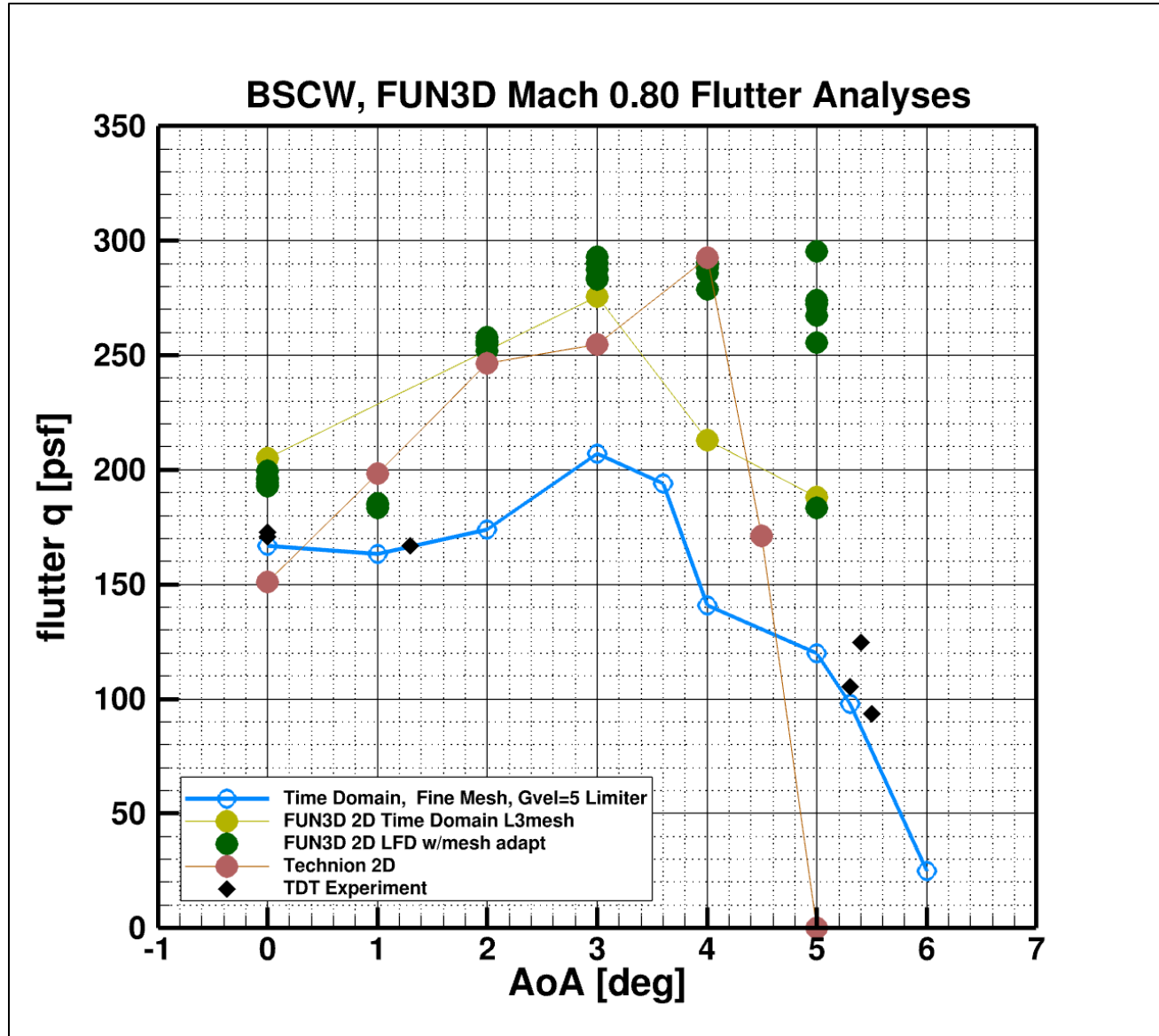
2D Coarse Mesh: 32-inch span wing with two symmetry planes



Bret's FUN3D 2D LFD w/mesh adaptation



2D Results



Conclusions, December 12



- Next meeting, February 13. (January meeting is canceled due to SciTech)
- 2D results presentation and recommendations.



**Merry Christmas !!!
Happy Holidays!!!**