

PAAW MDAO Development for N+3 wing of D8

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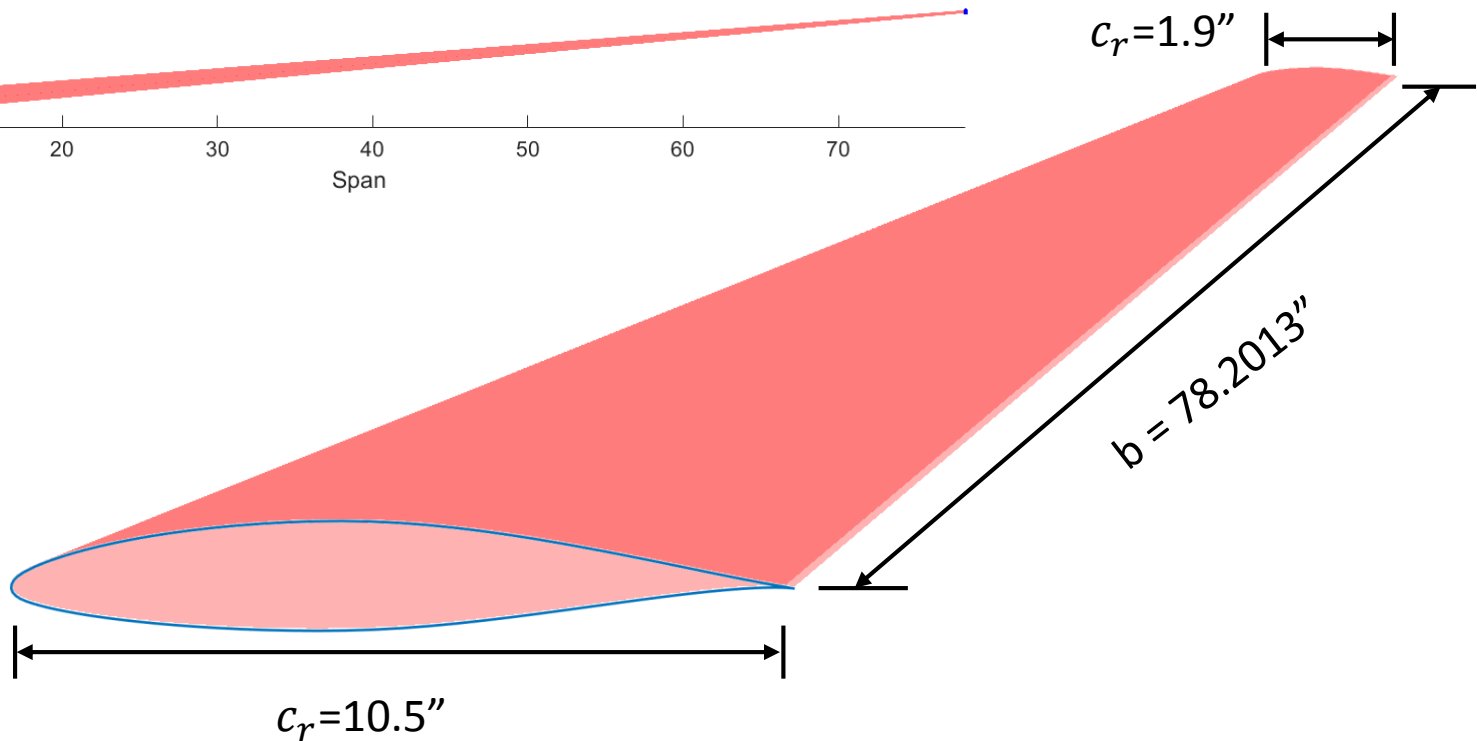
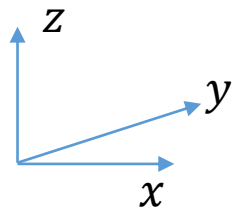
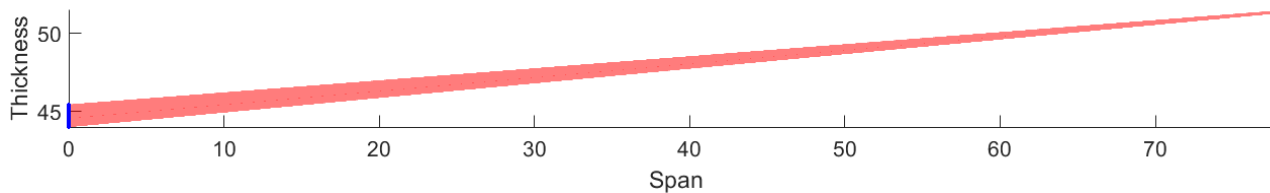
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Sep 10, 2018

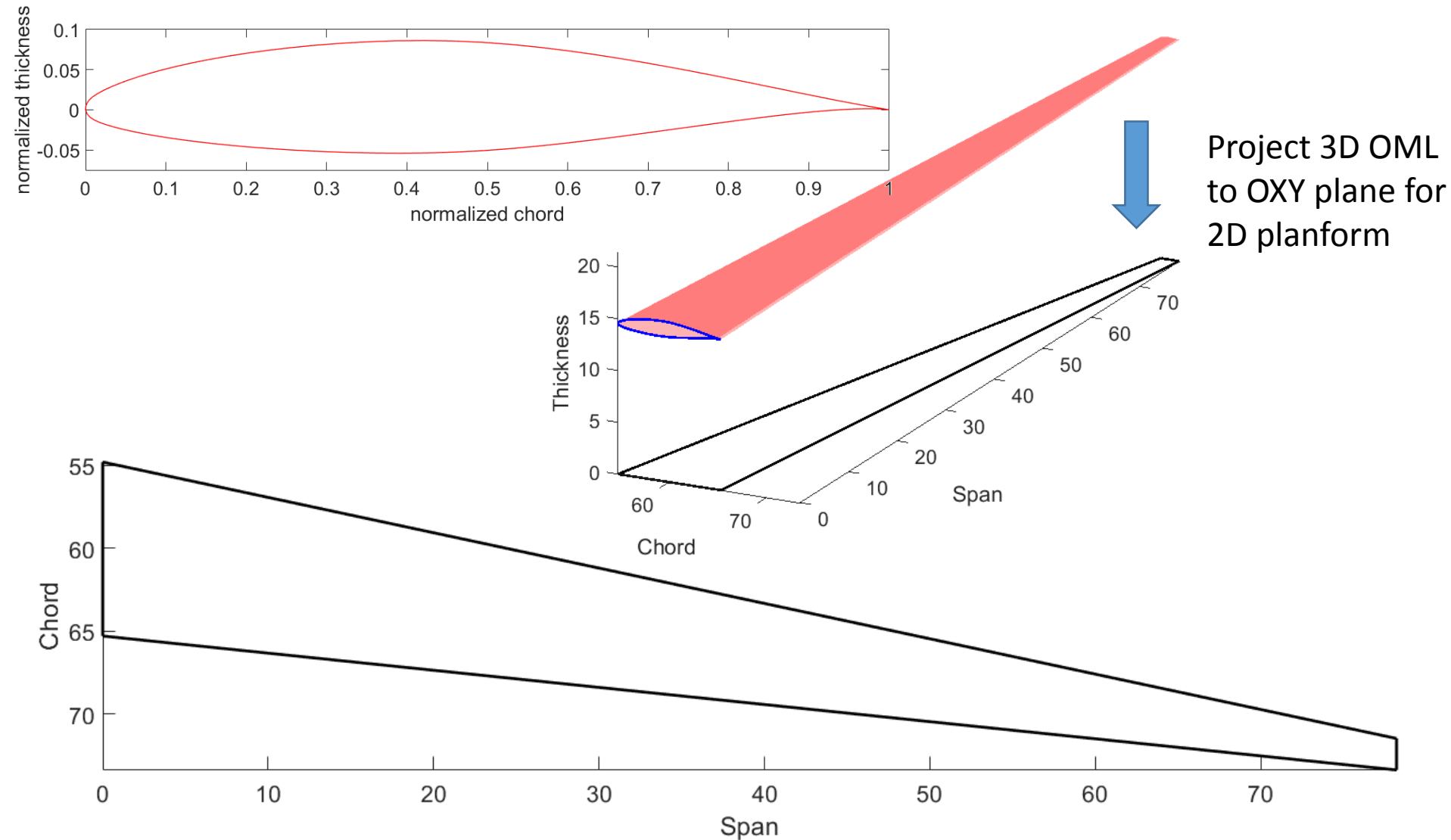
D8 Wing Info

Single-section wing:

- 1) Same airfoil across wing span
- 2) Taper wing with taper ratio, 0.181
- 3) Dihedral angle, $\Lambda=4.45^\circ$
- 4) Slight jig-shape existed

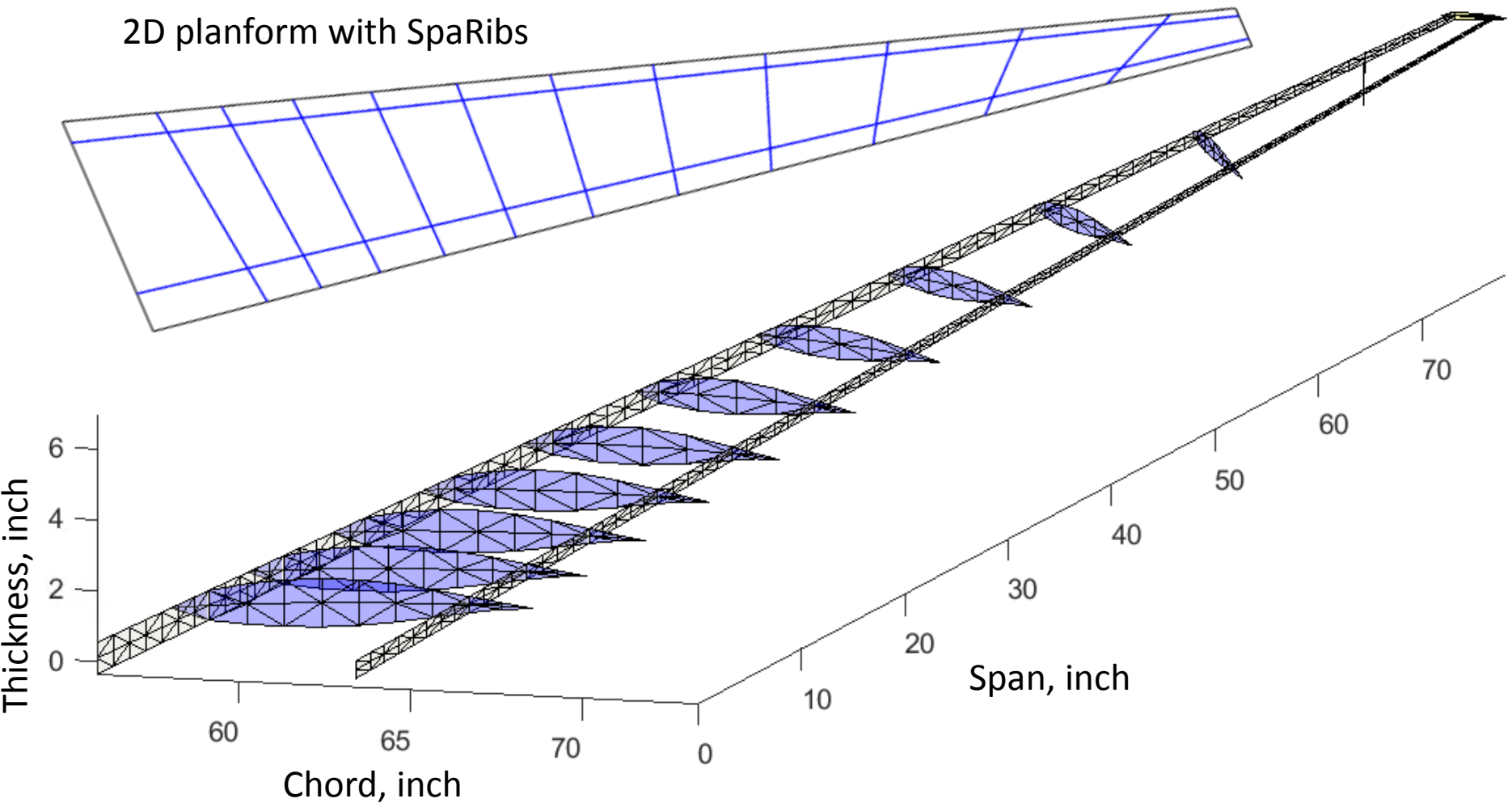


2D planform

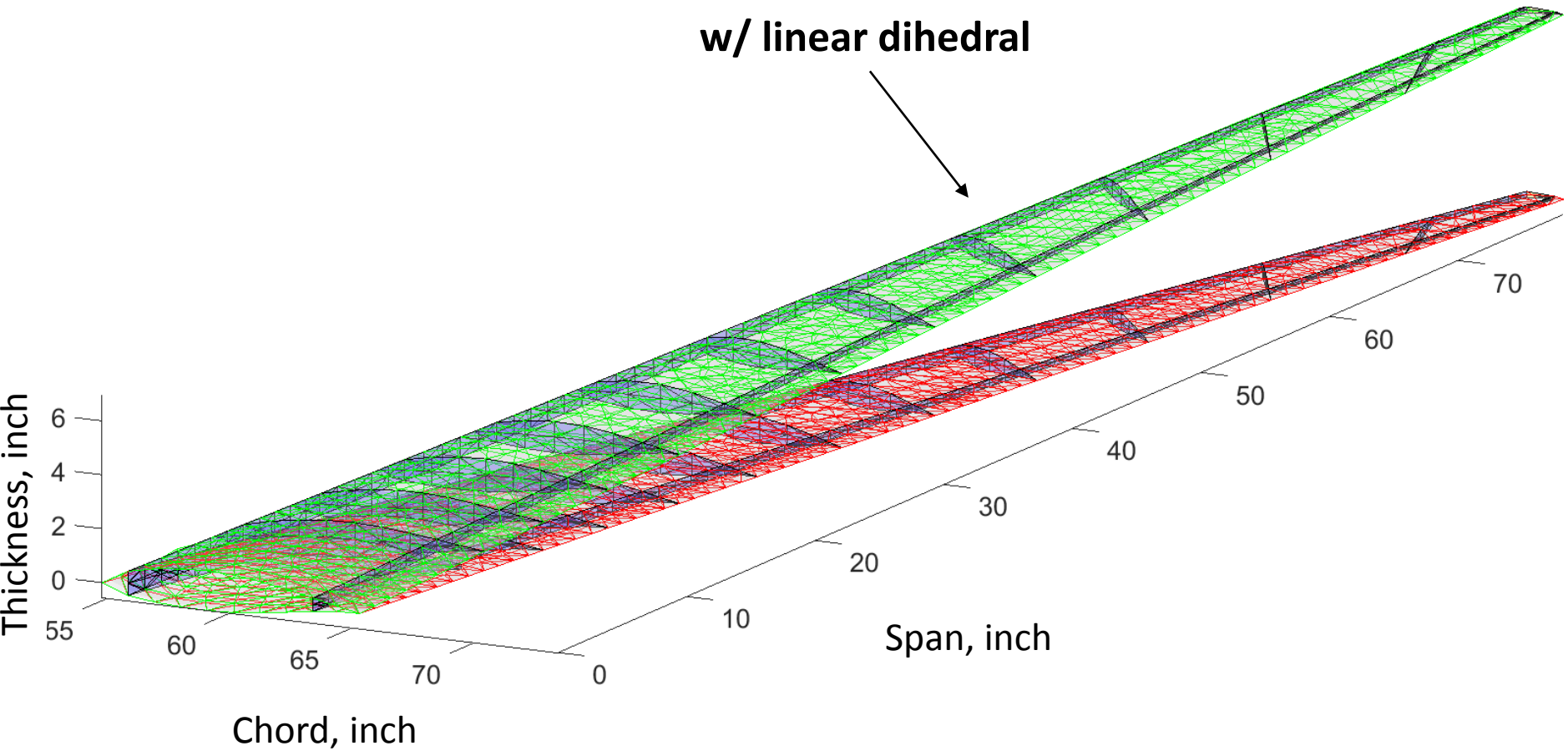


SpaRibs (straight)

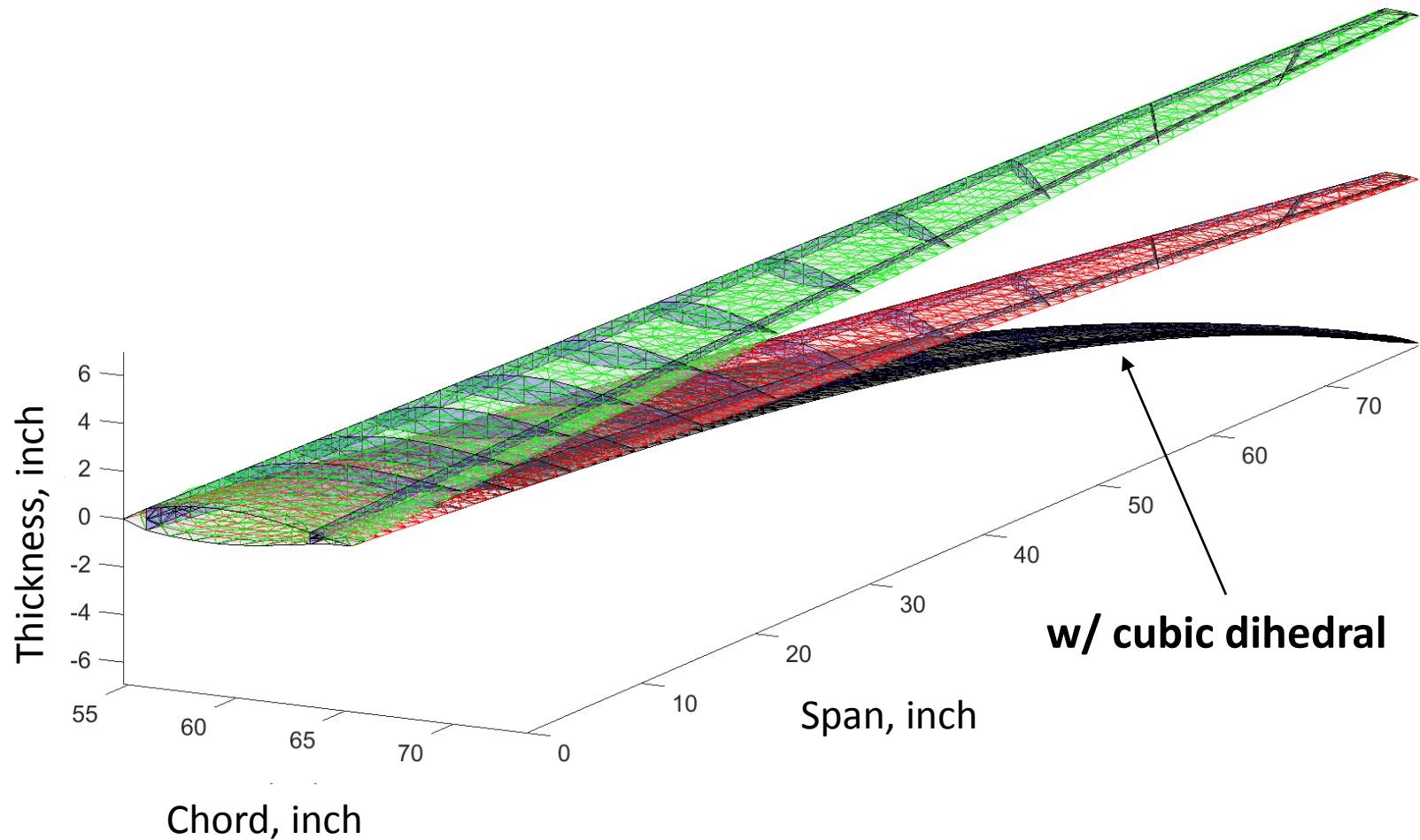
2D planform with SpaRibs



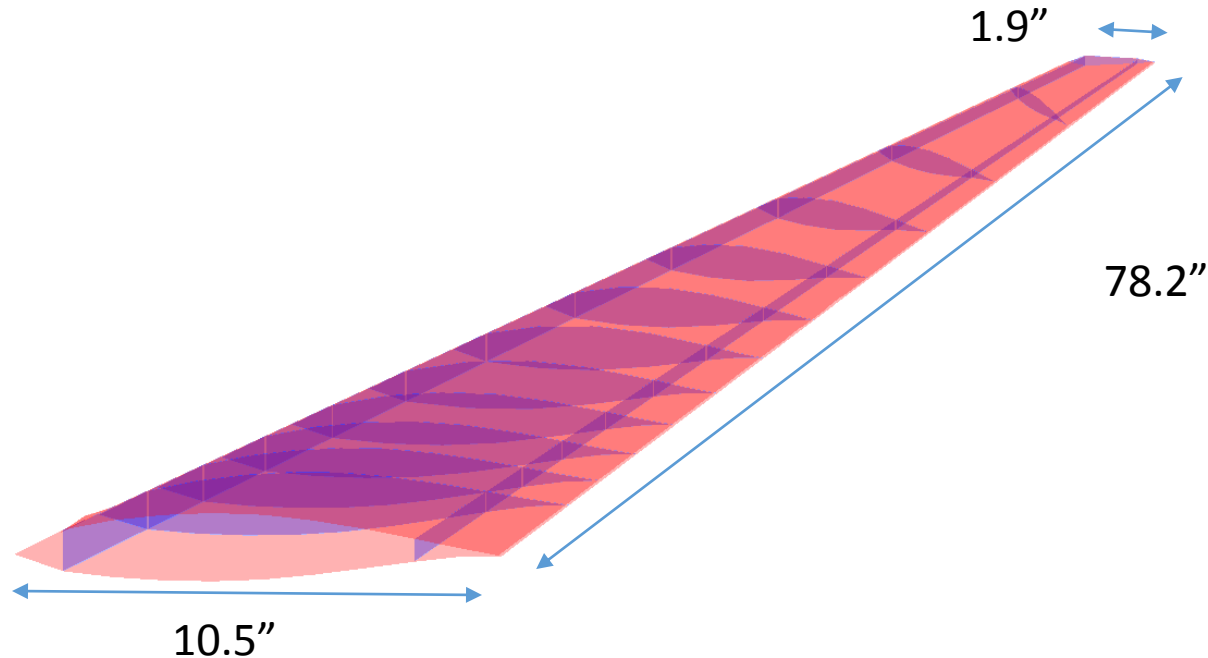
Linear Dihedral



Cubic Dihedral



Free Vibration Mode Results



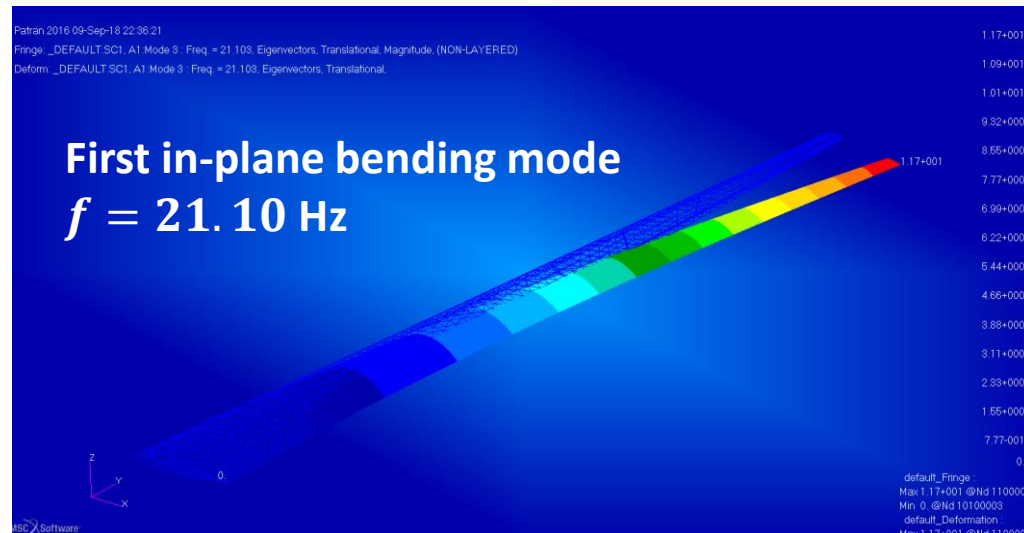
Clamped boundary condition
Linear dihedral effect considered;

Metallic material: $E = 1.015E6$ psi, $\nu=0.3$ and $\rho=0.098$ lb/in³
Thickness for skins, spars and ribs is 0.25"

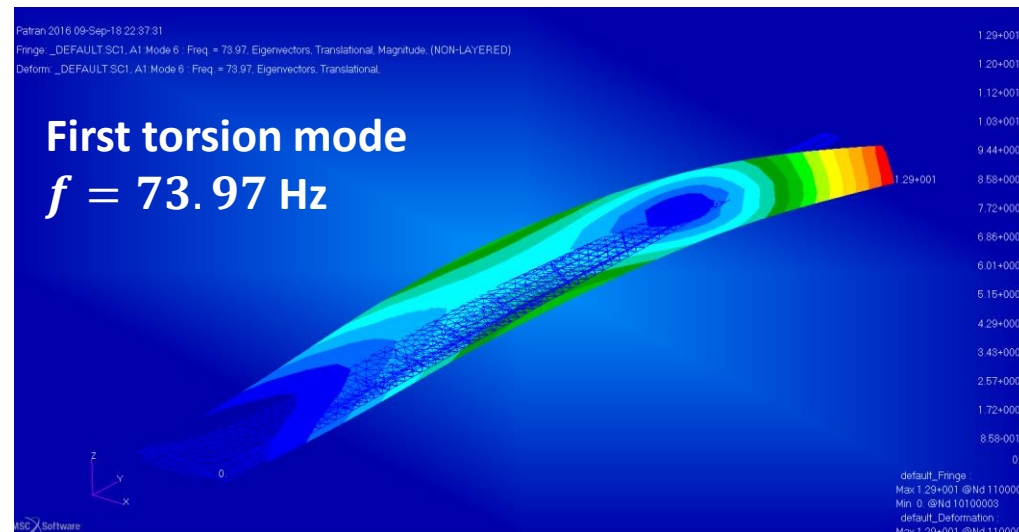
Modes 1 and 2



Modes 3 and 4



Modes 5 and 6



Next work

- Common nodes shared by skins and spars, ribs, not easy to apply CTRIA3->CQUAD4 directly, additional effort needed.
- Complete wing or half wing model?

