



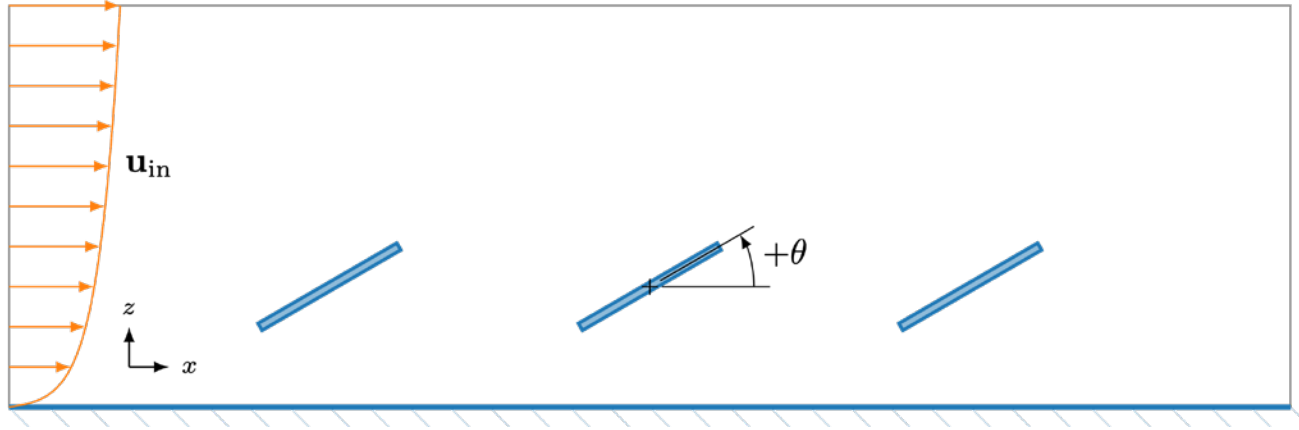
# Computational methods to characterize panel loading conditions for accelerated testing

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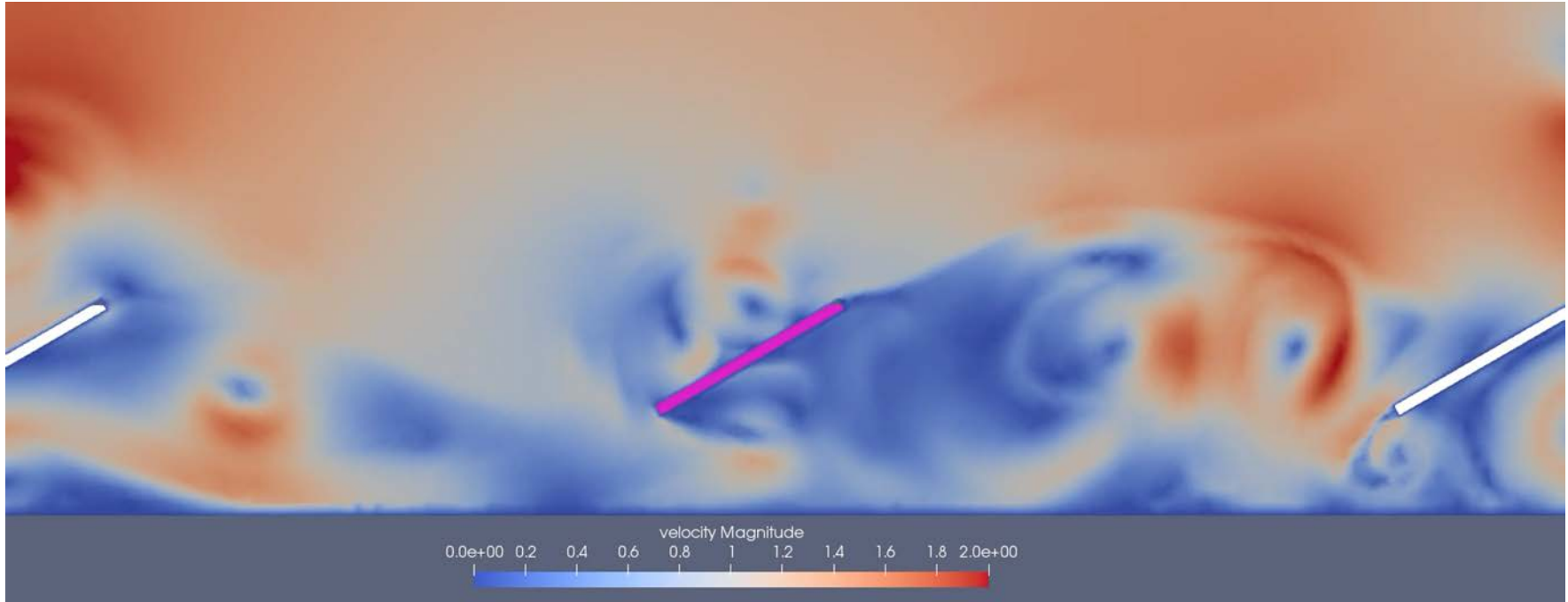
PVRW 2021

# Methodology



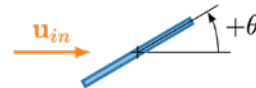
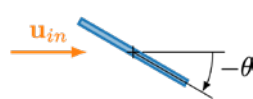
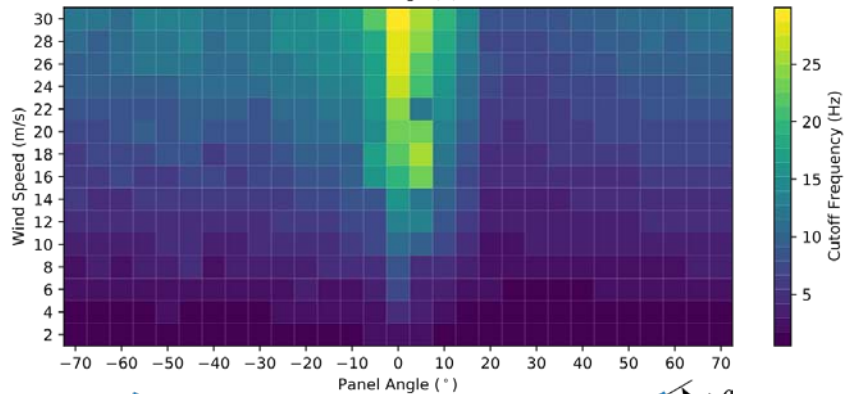
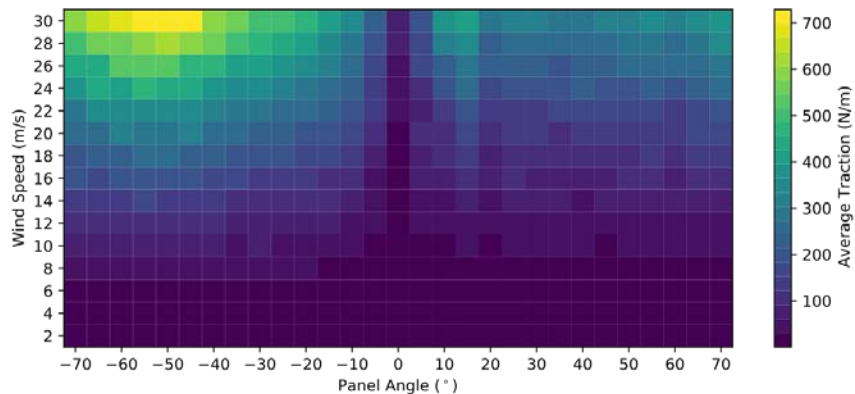
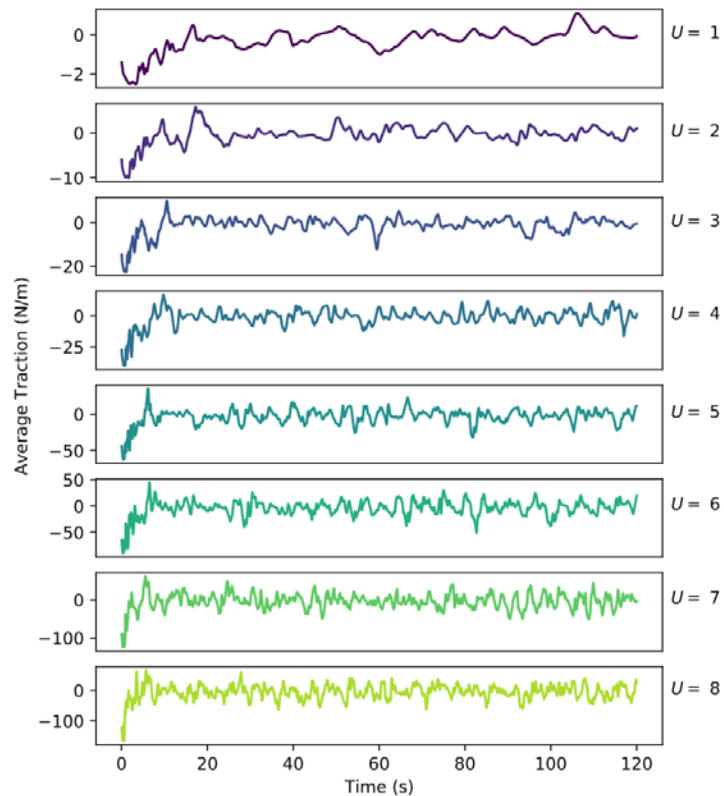
- Solution of Navier-Stokes equations using **FEniCS**
- Traction is measured along the surface of a downstream panel
- **Wind speed** at panel height and **panel angle** are easily adjustable inputs

# Results: Case Study



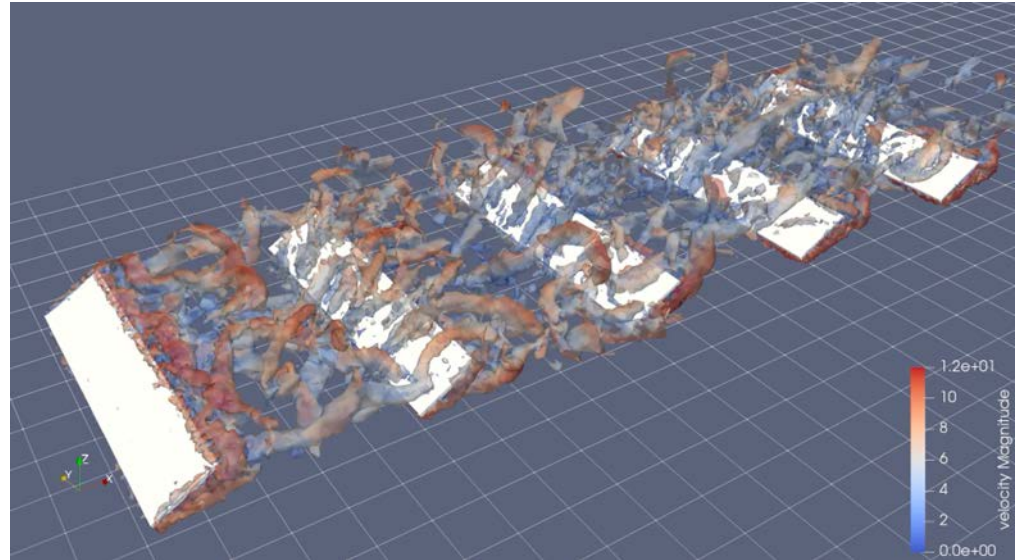
Fluid Simulation and Panel Loads at  $\theta = +30^\circ$ ,  $U_{ref} = 1m/s$

# Results: Amplitude and Frequency



# Concluding Remarks

- Currently constructing 3D simulations to verify these trends and loading magnitudes.
- These **amplitudes** and **frequencies** will be used to carry out accelerated experiments designed to reproduce the effects of long-term field exposure.



# Thank You

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