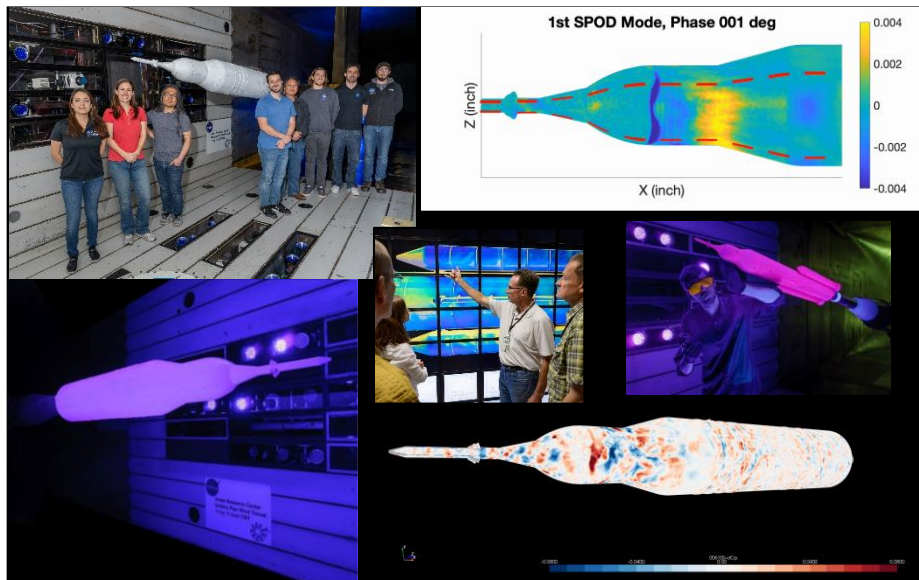




# Unsteady Pressure-Sensitive Paint (uPSP)

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## KEY ATTRIBUTES / COMPETENCY

- Global surface pressure data with mature data products, including for structural dynamics applications
- Scaled for production-level research facilities
- Leverages high-end computing at the NASA Advanced Supercomputer to process data in time to make changes during the test event
- Multiple fixed focal length lenses available for varying spatial resolution
- Up to 20 kHz sample rate
- Eight, high-speed cameras and sufficient lighting for full-body coverage
- Award-winning, open-source processing software

## TECHNICAL / SCIENTIFIC CHALLENGE ADDRESSED

Providing high-spatiotemporal resolution surface pressure data for advanced aerospace and acoustic analysis, primarily for wind tunnel models.

## SUMMARY

uPSP leverages advancements in fast-response pressure-sensitive paint, high-speed camera technology, and high-performance computing to provide unsteady surface pressure data on test subjects at NASA wind tunnel facilities. Quantifying unsteady surface fluctuations remains a top aerospace challenge that requires greater fidelity than traditional pressure transducers can provide.

## HERITAGE

- Support of Government, industry, and Department of Defense research and customers across the three research centers since the 1980s
- Provide valuable analysis and insight in support of the Space Launch System (SLS) and Artemis Programs

## APPLICATIONS BEYOND

For the design of advanced launch vehicles, capsules, aeroelastic models, and CFD validation in addition to fundamental research in aerospace.