



JSC TPS & Hot Structure Competency Overview

TPS Senior Discipline Expert – S. Bouslog

Revision Date – 6/18/24

JSC TPS & Hot Structure Competencies

National Aeronautics and
Space Administration



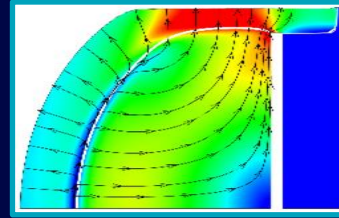
Systems Management

- Manage NASA-STD-5021 - TPS Design Standard
- TPS qual & cert planning / review
- Contractor analyses & testing oversight
- Vendor TPS fabrication & integration oversight
- Flight Anomaly Resolution
- Certificate of Flight Readiness



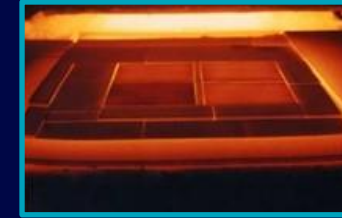
Vehicle Design & Integration

- TPS/Hot-structure design & layout criteria
- TPS/Hot-structure vehicle design
- Predicted flight environmental analysis
- Material options & system trades
- Material split-lines definition
- TPS structural attachment
- Interface/penetration close-out



Analysis

- Thermal & Ablation Analysis: CHAR/FIAT codes & Thermal Desktop
- Arc-jet test data analysis
- Thermal/structural analysis
- Aerothermal prediction coordination



Testing

- High-enthalpy flow testing
- Radiant heat testing
- Test article design & instrumentation
- Material property testing – thermal & mechanical
- Structural tests
- MMOD impact testing at WSTF



TPS Materials & Additive Manufacturing

- Material requirements definition
- Material characterization testing – metals, polymers, composites
- Material & process specification development
- AM of Thermoset resins
- Prototype TPS fabrication at TPSF – tiles, blankets, thermal barriers

JSC is a leader in the development & integration of advanced TPS Systems

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JSC TPS Development Activities

National Aeronautics and
Space Administration

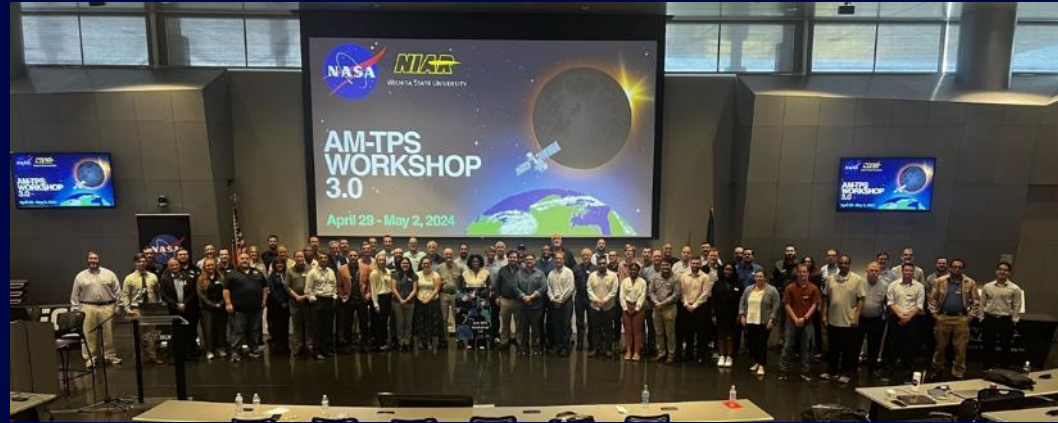


Robotic Printed
Heat Shields



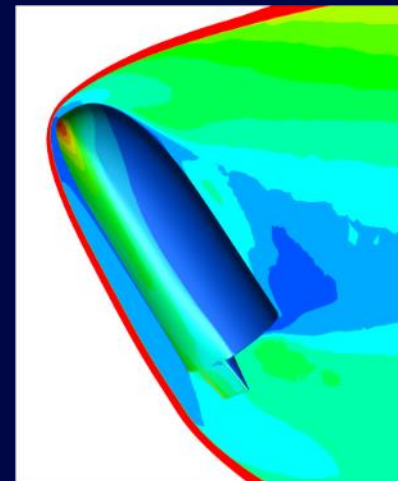
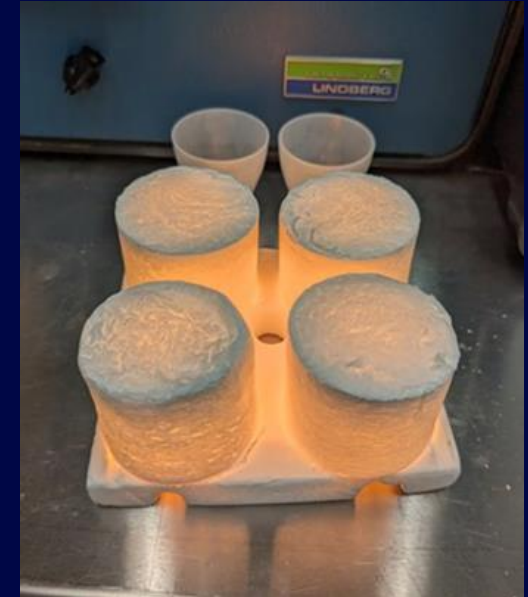
Robotic cell at Oakridge
National Lab (ORNL)

3D – Printed Heat Shields
for Capsules



Additive Manufacturing TPS Workshop Leader

Upgraded Reusable
Ceramic Tiles



HyperSTEP Test Bed –
Hypersonic Flight

JSC is innovating low-cost & rapid systems for tomorrow – from spacecraft to re-entry vehicles

Collaboration Opportunities

National Aeronautics and
Space Administration

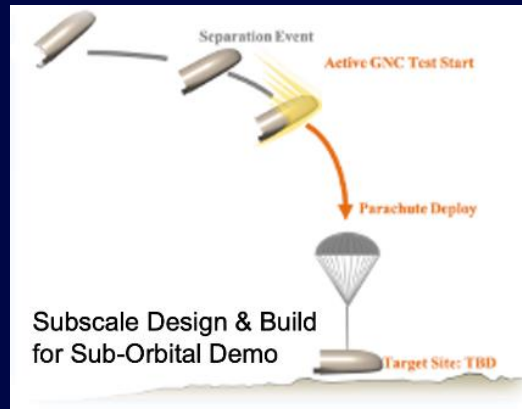


3D – Print your Heat Shield



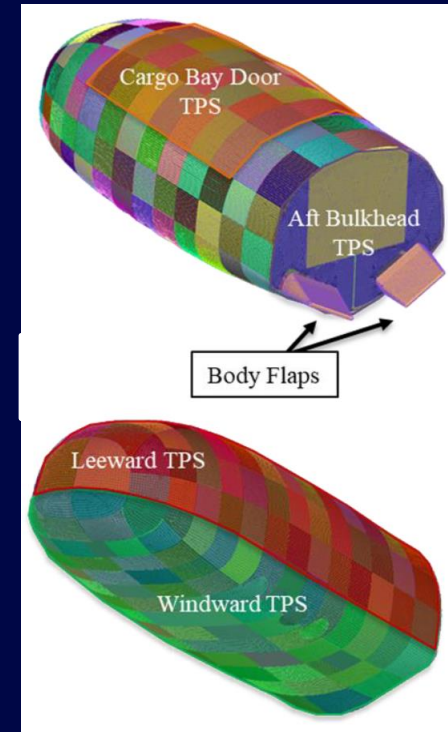
Robotic cell at ORNL

Flight Test your TPS/ Hot Structure



HyperSTEP

TPS / Hot Structure Design Consultation



Fabricate your Prototype TPS



Coated Tiles



Billets



Thermal Barriers



Blankets



Composites,
Ablators & Tiles
Machining



- Ovens
- Sintering
- Heat Cleaning
- Waterproofing

TPS Facility (TPSF) at KSC

We would like to work with you – Any program, domain, or mission