



## NASA STTR 2007 Phase I Solicitation

### T7.02 Innovative Fabrication Techniques for High Temperature Composites

Lead Center: LaRC

Innovative concepts are being solicited for the development of fabrication techniques for high temperature composites capable of operating within the range of 350°F for at least 50,000 hours to 600°F for 1000 hours. The highest priority is structural materials that are capable of being used at the above temperature regimes for aerospace applications. Emphasis is focused on cost effective and highly automated high temperature composite manufacturing concepts. Composite processing techniques that do not require autoclave processing are of key importance. Fabrication techniques include resin infusion (VARTM, RTM), tow/tape placement, e-beam curing and other non-autoclave processing techniques. Innovative and novel composite fabrication approaches are sought for the following materials and structural systems:

- Polymer matrix composites;
- Fiber metal laminates;
- Hybrid composites;
- Thermal protection and insulation systems;
- Complex composite and hybrid structural systems; and
- Low-density and high-temperature materials.

Proposals should address the following performance metrics as appropriate:

- Processing techniques of lightweight, high temperature composites;
- Resin development;
- Reinforcement development;

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- Out of Autoclave fabrication technologies;
  - Aerospace quality structural application;
  - Characterization of material properties;
  - Elevated use temperature capability;
  - Damage tolerance;
  - Solvent resistance;
  - Long term durability;
  - Scalability.