DARPA Efforts and Interests in Composites

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Existing Efforts

**Advanced Structural Fiber**
- Precursor development
- Process/Material Understanding
- Improved properties

**Open Manufacturing**
- Technology Insertion Program
- Bonded Composite Confidence
- Informatics/Probabilistic Process Modeling
- Composites Manufacturing Demonstration Facility

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Composite Interests

Hypersonic Material Systems

- Materials Systems
  - Composites
  - Metallics
  - Coatings
- Processing
  - Open Manufacturing
  - Additive Manufacturing
- Material System Integration

- Aerospace Performance at Automotive Efficiency
  - New Material Formats
  - Thermoplastics
  - New Tooling Approaches
  - Small Part Processing

Polymer Matrix Composite Material Landscape

Aero
- Modulus 35 Msi
- Rate 10 lb/hr

Automotive
- Modulus 3 Msi
- Rate 100 lb/hr

Performance (Stiffness, Msi)

Efficiency (Rate, lb/hr)
• Composites is a commodity based on industry and material type
  • Aerospace: Graphite/Polymer composite laminates
  • Automotive: SMC
  • Marine: Glass/Polymer

• Issues are broader than technical and economic
  • Application and marketplace requirements exceed economics
  • Unifying technology requirements not evident

• Supply Chain Issues
  • Technology availability not consistent
  • Expertise, skill, and confidence is specific to market and place in supply chain
  • Workforce development issues