STRUCTURES AND MATERIALS COMPETENCY VISION AND PURPOSE AT NASA LANGLEY

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Structures & Materials Competency Vision and Purpose

Vision

The revolutionary materials and structures technologies developed at NASA Langley Research Center meet the needs of the Aerospace Community and benefit the quality of life on Earth

Purpose

Develop and deliver useable research and technology results to meet Agency program objectives and to enable the Agency to develop future aerospace materials and structures

Areas of Expertise

-From materials synthesis to large scale structural validation-

AoE1: Materials synthesis & processing

AoE 2: Analytical and computational methods

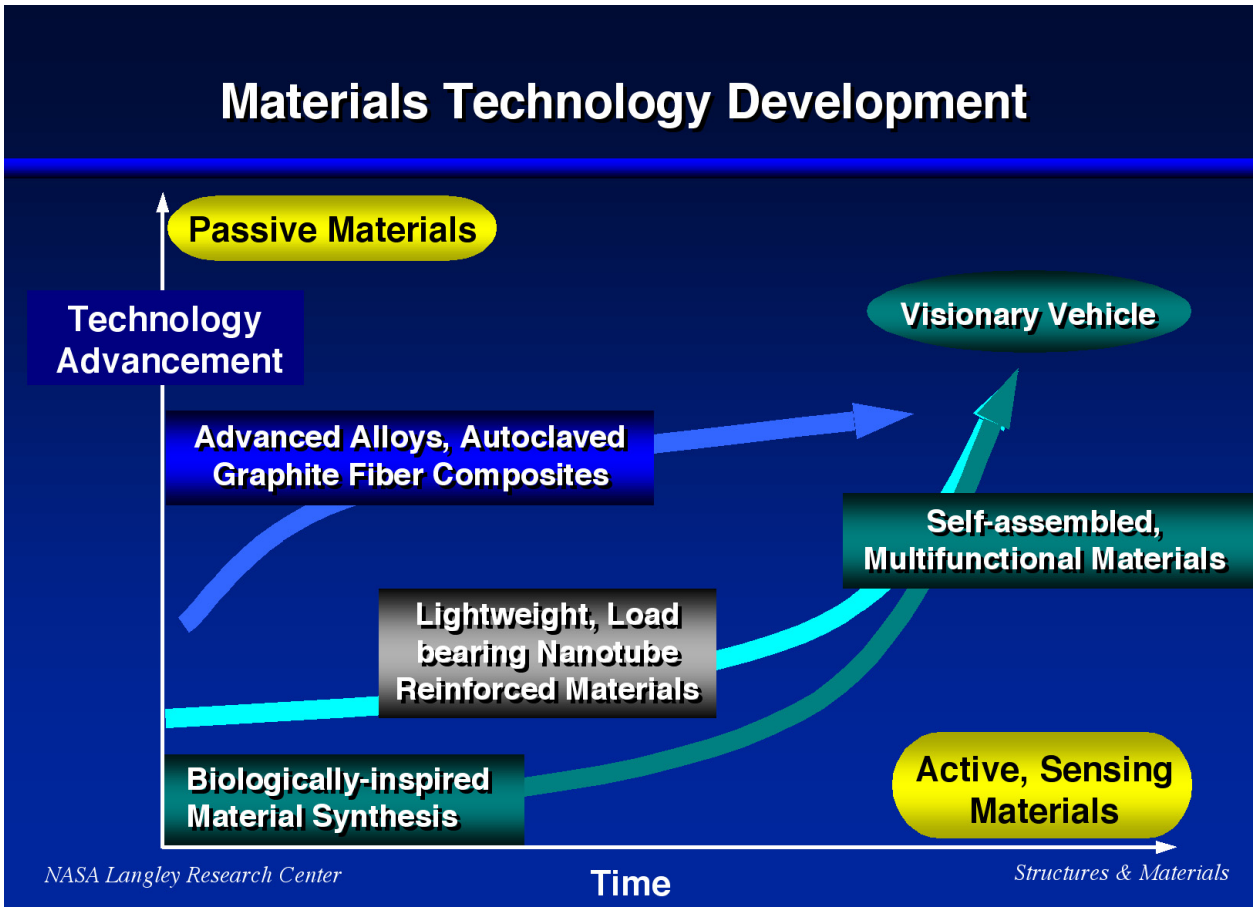
AoE3: Structural concepts, behavior, durability, & damage tolerance

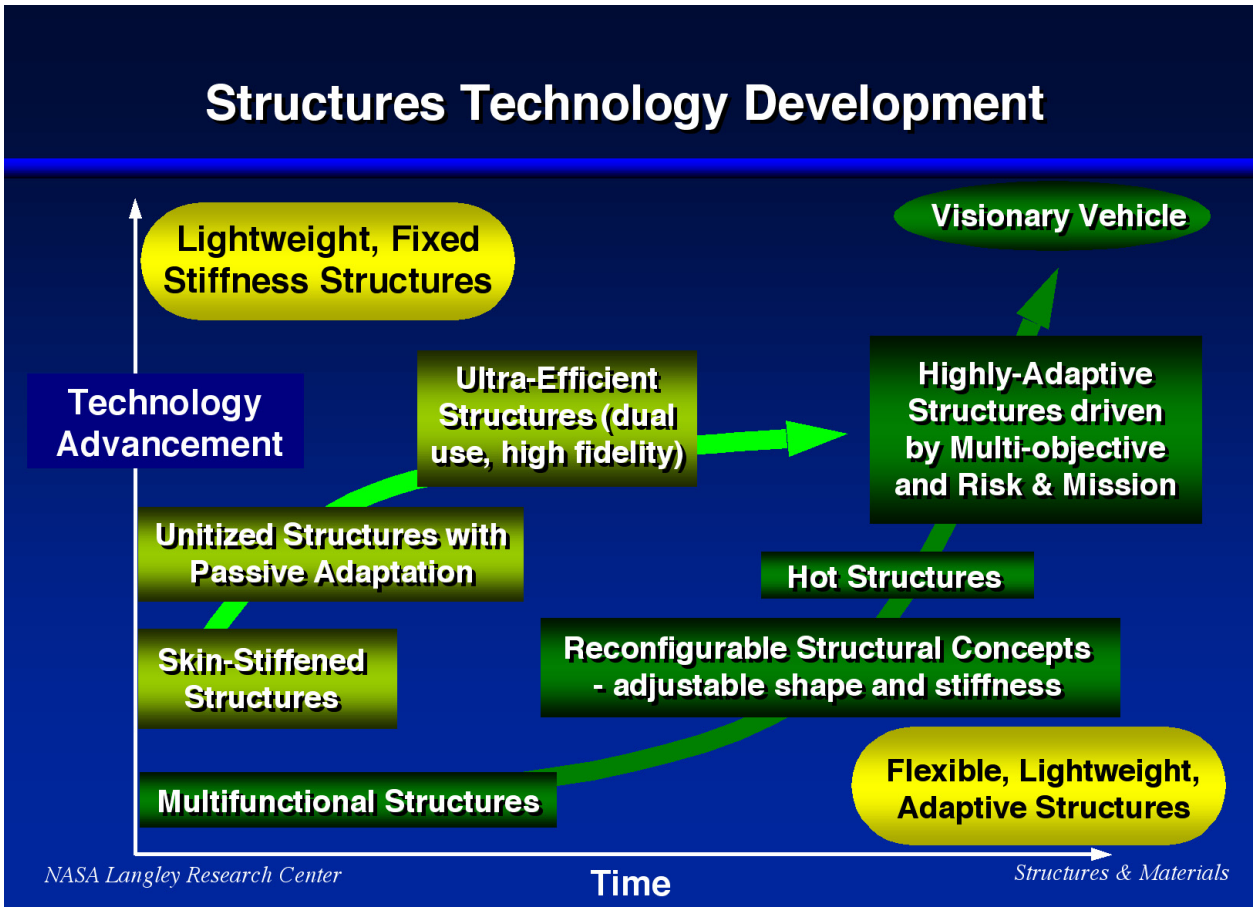
AoE 4: Nondestructive evaluation

AoE5: Structural dynamics & landing dynamics

AoE6: Aeroelasticity & unsteady aerodynamics

AoE7: Experimental methods & laboratory operations


Materials Technology Development
Passive Materials
Technology Advancement
Visionary Vehicle
Advanced Alloys, Autoclaved Graphite Fiber Composites
Self-assembled, Multifunctional Materials
Lightweight, Load bearing Nanotube Reinforced Materials
Biologically-inspired Material Synthesis
Active, Sensing Materials
NASA Langley Research Center
Time
Structures & Materials


Structures Technology Development
Lightweight, Fixed Stiffness Structures
Visionary Vehicle
Technology Advancement
Ultra-Efficient Structures (dual use, high fidelity)
Highly-Adaptive Structures driven by Multi-objective and Risk & Mission
Unitized Structures with Passive Adaptation
Hot Structures
Skin-Stiffened Structures
Reconfigurable Structural Concepts - adjustable shape and stiffness
Multifunctional Structures
Flexible, Lightweight, Adaptive Structures
NASA Langley Research Center
Time
Structures & Materials


NASA's Vision
To improve life here,
To extend life to there,
To find life beyond.
NASA's Mission
To understand and protect our home planet
To explore the Universe and search for life
To inspire the next generation of explorers
...as only NASA can.

NASA Langley Research Center

Founded in 1917

- First civil aeronautical research laboratory

Programs

- $737M total FY 02 budget

Facilities

- $4 billion replacement value

People

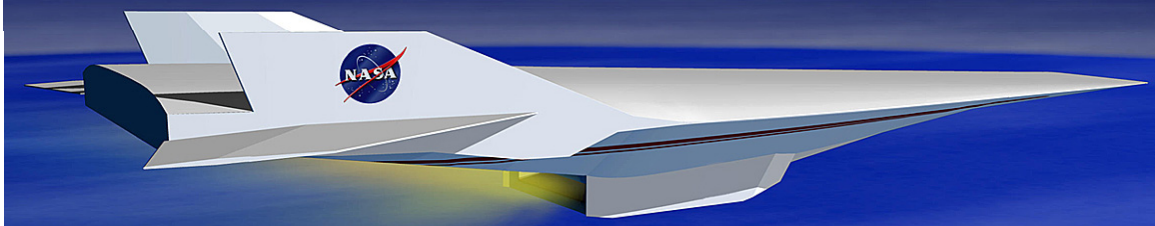
- 2365 Civil Servants
- 2052 Contractors

Langley Mission

In alliance with industry, other agencies, academia, and the atmospheric research community,

in the areas of aerospace vehicles, aerospace systems analysis and atmospheric science we undertake innovative, high-payoff activities beyond the risk limit or capability of commercial enterprises

and deliver validated technology, scientific knowledge and an understanding of the Earth's atmosphere



Our success is measured by the extent to which our research results improve the quality of life