

STELLAR TEAM

NOBLE MISSION



MANTECH Overview

Dr. Steven Cox



Industrial Manufacturing and Technology

- **Coordinate ManTech efforts to support the MDA portfolio**
 - Identify, initiate, and monitor manufacturing technology projects to support economical and timely acquisition and sustainment of weapon systems
 - Advance the maturity of manufacturing processes to accelerate their progression from research and development to implementation
 - Partner with OSD and other DoD services and agencies on ManTech projects via the Joint Defense Manufacturing Technology Panel (JDMTP)
- **Manage Industrial Base investments for MDA**
 - Responsible for Title 3 and IBAS activities for the command
 - Coordinates with OSD on Industrial Base analysis and shortfall prioritization
- **MDA ManTech Council facilitates project identification and prioritization via engagement with internal and external stakeholders**
 - Collaborate with program offices to identify critical manufacturing technology needs, prioritize projects, and submit for approval
 - Coordinate with MDA's Science and Technology Council to identify manufacturing requirements needed to enable future capabilities
 - Coordinate with Services and National Labs for synergies

Approved for Public Release
21-MDA-10707 (23 Feb 21)



ManTech Supports Current MDA Systems

Missile Defense mission presents unique manufacturing challenges

- **Long service life**
 - **ManTech opportunities for new O-rings, new capacitors without electrolytes, less corrosive metals, polymer encapsulations new conformal coatings**
- **Extreme operating environments**
 - **ManTech Opportunities for higher temperature metals, flexible electronics to withstand greater vibrations**
- **Limited pre-launch system testing capability**
 - **ManTech opportunities for neutron radiography and CT of one-shot devices**
- **Limited payload sizes**
 - **ManTech opportunities for Additive Manufactured lighter weight metals and structures**
- **Limited system quantities**
 - **ManTech opportunities for Robotics to optimize manufacturing**

Manufacturing Excellence Helps Mitigate Operational Challenges



Current ManTech Topic Areas

- **3D Printing of TPS structures and Aeroshells**
 - Demonstrate 3D printing of C-103 and C/C continuous fiber structures
- **High temperature ceramics/materials for hypersonic seeker windows:**
 - Develop materials and production processes for high temperature ceramic windows that can withstand thermal extremes while maintaining signal transmissivity
- **High Temperature High Modulus Materials:**
 - Develop manufacturing capability and capacity for PAN alternatives, C-SiC fibers, toughened 2D C/C laminates and high char yield resins to meet requirements for Hypersonic Missile and Missile Defense Systems
- **Manufacturing and packaging of directed energy components**
 - Manufacturing integration and automation for increased yield of advanced laser diode assemblies
- **State-of-the-Art Heterogeneous Integrated Packaging (SHIP)**
 - Demonstrate enhanced fabrication and packaging of heterogeneous electronics for MDA
- **Green supercapacitors for reduced life cycle costs**
 - Improve supercapacitor energy capacity while removing toxic electrolytes and rare earth elements



Additional ManTech Interest Areas

- **Transition of additive manufacturing to production for flight hardware**
 - **Statistical variation of metal AM parts**
 - **Cyber security of print files and machines**
 - **Certification of large scale printing factories**
 - **Certification of production parts**
- **Increase MRL of advanced chip processes**
 - **Integration of multiple chemistries on a single chip or package**
 - **Production of next generation MMIC technologies**
 - **Quilted die integration**
- **High Temperature AM metals:**
 - **Development of new refractory alloys optimized for 3D printing**