Importance of Microelectronics in the Strategic Technology Office

Defense Advanced Research Projects Agency (DARPA)

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Of all of the world's problems

DARPA

Applies novel insight and high-risk approach to hard problems

STO

Selects problems
Creates solutions
Moves at speed
Demonstrates at scale

STO thrusts include:

Active and Passive Sensing
Battlefield Effects
Command-Control-Communications
System of Autonomous Systems
Empowered Human Decision Making

STO transitions multiple ways

Collaborative, As a Service, Proof of Tech Surprise, Traditional, DevOps, Product Development

Investment in Extreme Environments

Global Warming

- Navigable Arctic
- Urban environments including underground
- Loss of coastal facilities
- Seabed

Space Interest

- Very low-Earth orbit (VLEO)
- HF propagation prediction

Lunar Operations

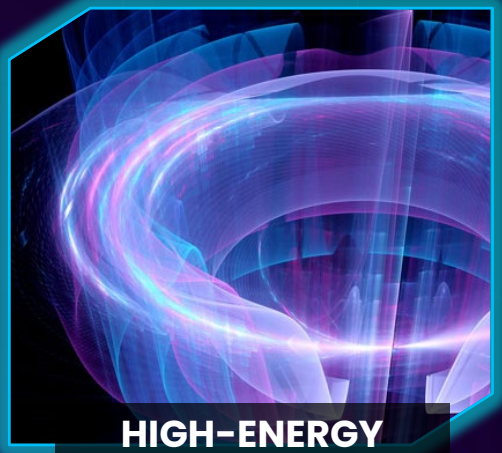
- Scalable, persistent commercial and civil operations
- Infrastructure technology thrusts
  - Power distribution
  - Communications
  - Relative positioning and navigation methods
  - Lunar surveying and geodesy
- International order/standards

Strategic Technology Office Research Challenges

CAMOUFLAGE – OPTICAL DOMAIN

OPTICAL OPERATIONS

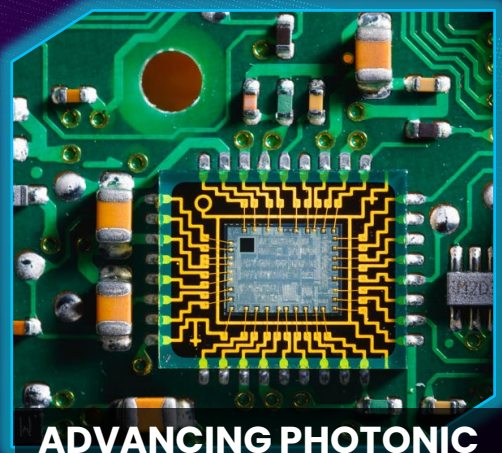
QUANTUM TECHNOLOGIES



HIGH-ENERGY PHYSICS SOURCES

MANUFACTURING

GPS-DENIED NAVIGATION



ADVANCING PHOTONIC INTEGRATED CIRCUITS

UNDERWATER COMMUNICATIONS

THANK YOU