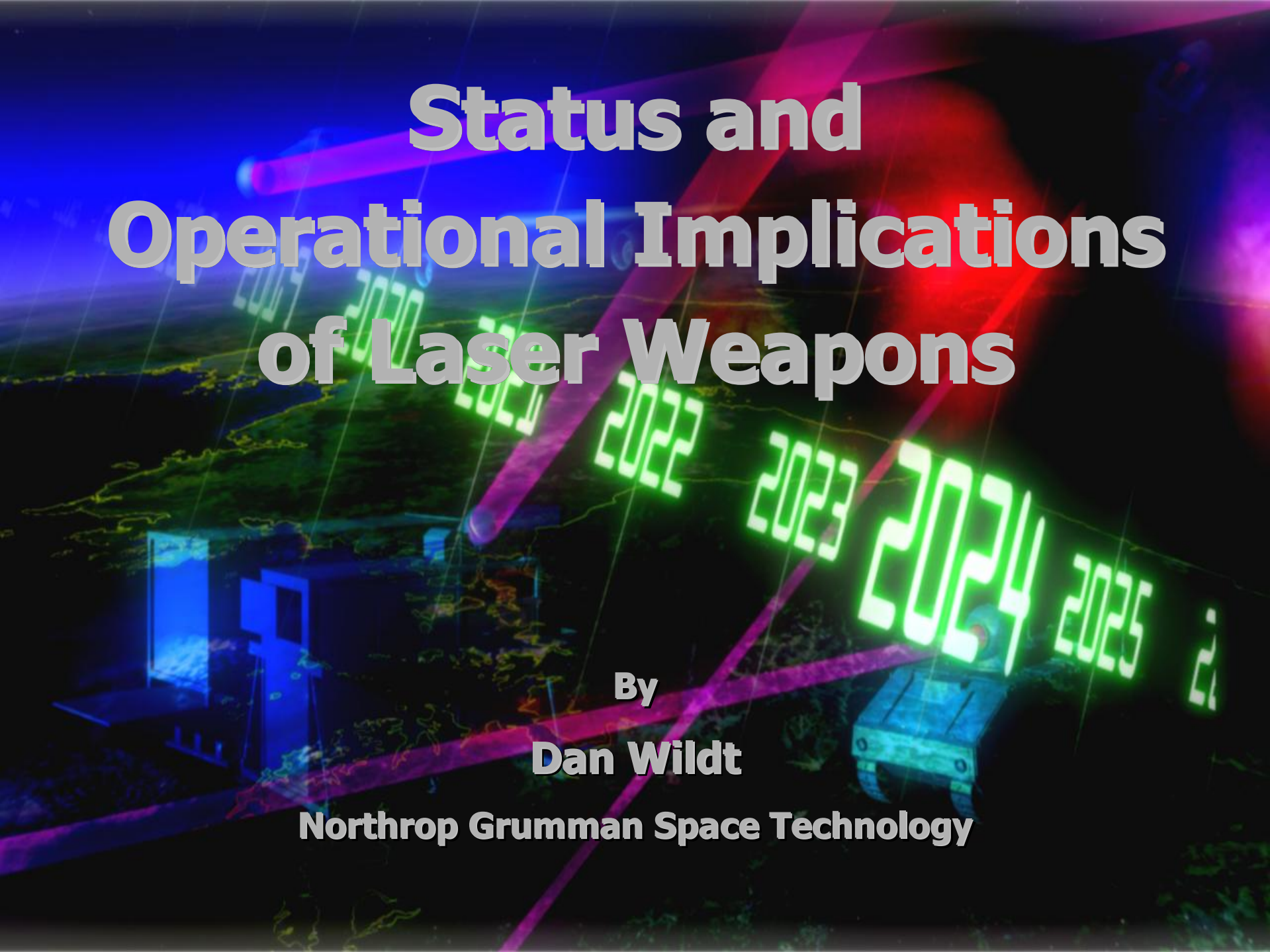


Status and Operational Implications of Laser Weapons

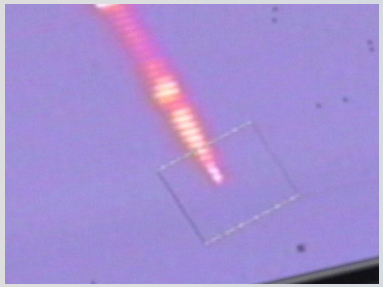
By

Dan Wildt

Northrop Grumman Space Technology

Growing Laser Weapons Capability

- Tactical High Energy Laser has shot down:
  - Rockets
    - 122mm-Katyusha
  - Short range ballistic missile
  - Artillery
  - Mortars



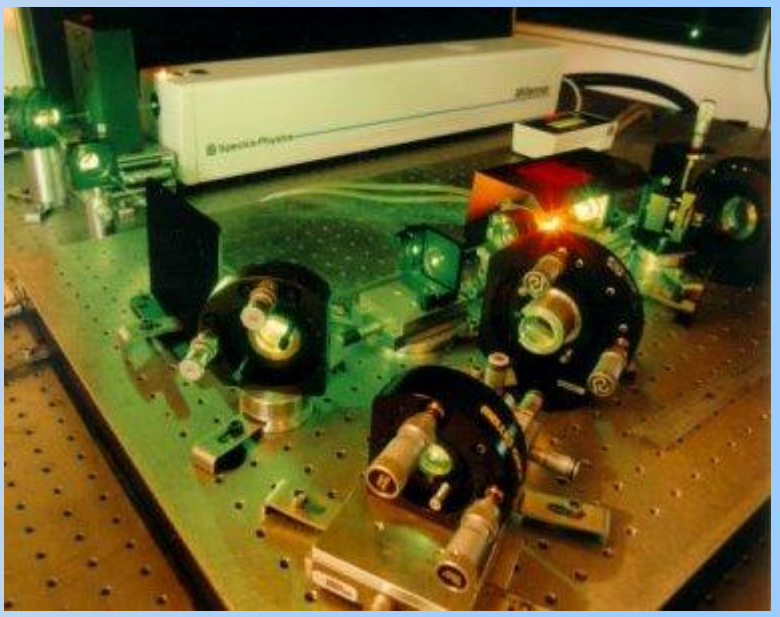
Airborne Laser (ABL)

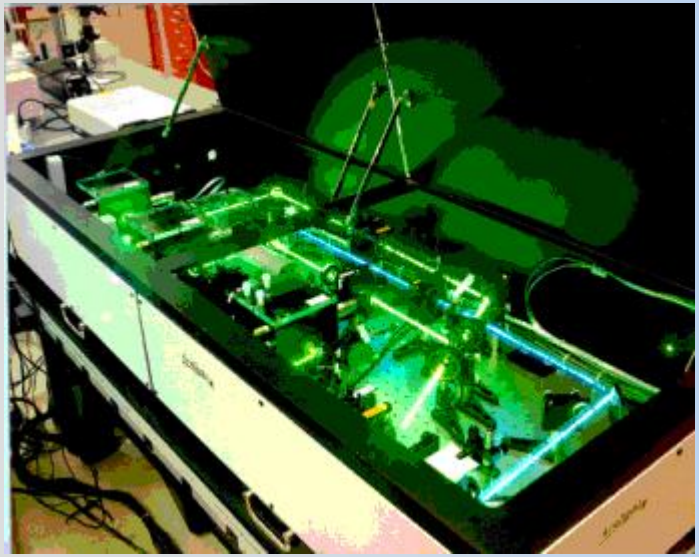
High Power Laser:

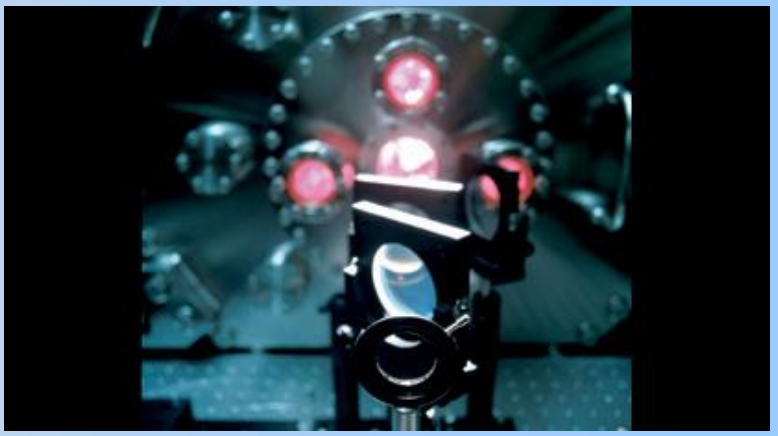
- **World's First MW-Class COIL Laser**
- **World's First MW-Class Airborne Laser**
- **Demonstrated weapons-class power full duration run in 2005**

Solid-state Lasers

- Solid-State Laser Programs approaching militarily significant power levels







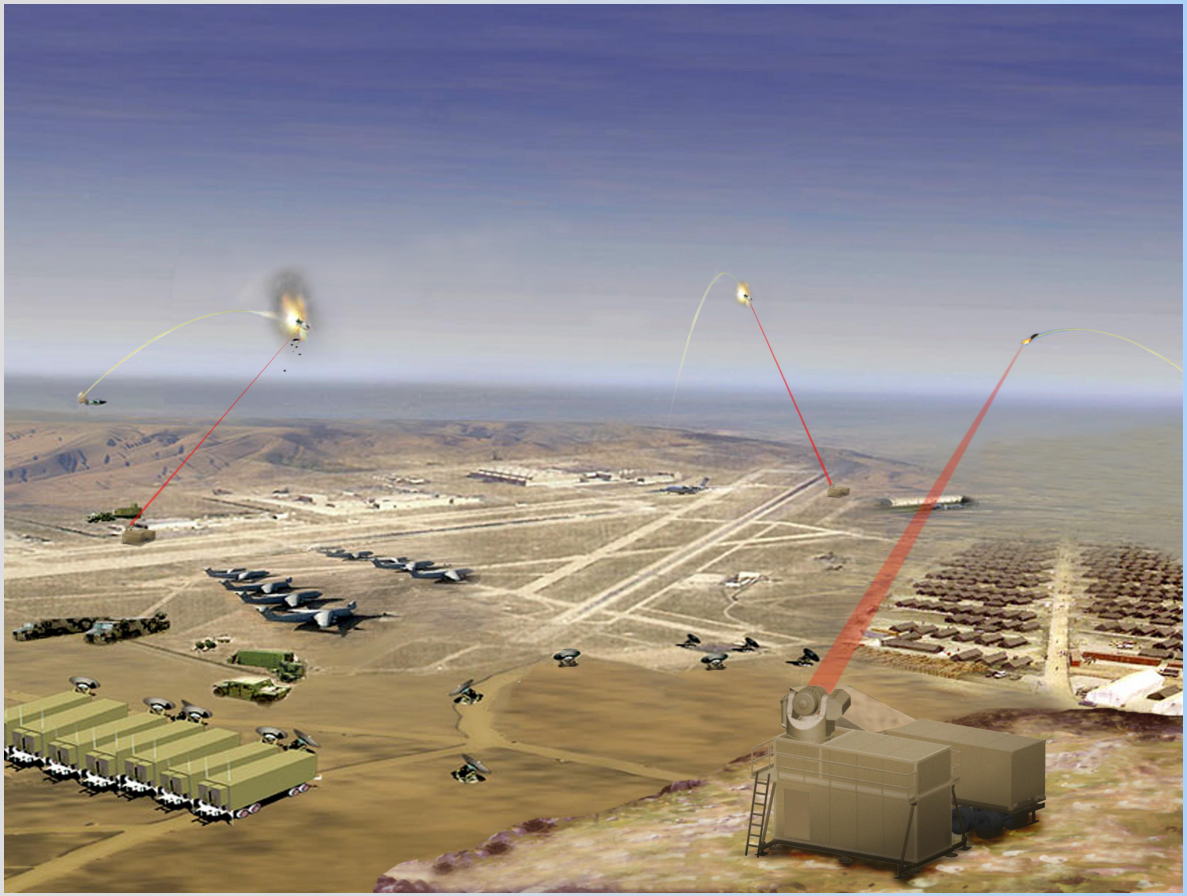
Operational Implications

- Balancing the strengths of laser weapons against their operational limitations makes them well suited to roles in two key mission areas:
  - Active Defense: providing air, land, sea, and space platforms the ability to defend themselves, other platforms, and large areas against missiles, aircraft, bombs, artillery shells, or rockets.
  - Offensive Strike: providing the capability to achieve lethal or non-lethal effects against a range of suitable targets.

Defensive Operations

- Air Platform Active Defense
  - Increases the survivability of aircraft
  - Reduces SEAD requirements

Ground-based Laser Defenses



- Increases ground force survivability
- Enhances freedom of maneuver

Naval Self Defense

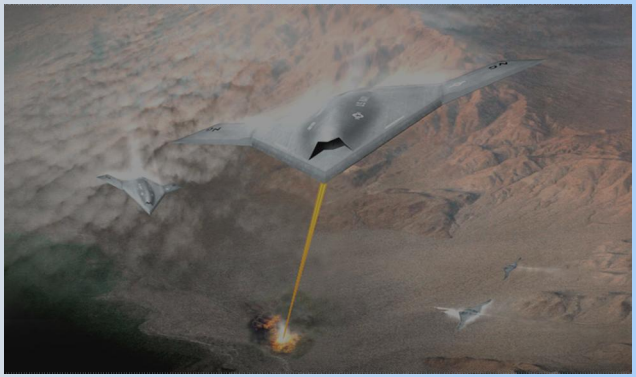
- Provide fleet defense against wide spectrum of threats

Defense of Critical Infrastructure

- Protect critical infrastructure against range of threats

Offensive Operations

- Most likely dedicated to missions where precision, speed, numbers of engagements are more important than pure destructive power.



A Wake-up Call for Warfighters

- **Accelerating trend toward increased lethality in many dimensions of the battlespace threatens U.S. offensive dominance…**

Triple digit SAMs

BVRAAMS

Supersonic ASCMs

TBMs

Indirect fire PGMs

Conclusion

- Laser weapons can potentially reverse that trend by increasing the ability of U.S. forces to defend against threats that are otherwise difficult or almost impossible to defeat