

THE VALUE OF PERFORMANCE.

NORTHROP GRUMMAN

SYNOPTICS®

Coating Capabilities

Specializing in High Laser Damage
Threshold Thin Films

- Resistive Source
 - Single Layer MgF_2 AR coatings for YAG and TGG
- Electron-Beam
 - High LDT coatings for pico-second through micro-second applications, $60J/cm^2$ typical for 20ns
- Ion Assist Electron- Beam
 - Economical desense oxide films
- Ion Beam Sputtering (conventional)
 - Typical low-loss discreet material oxide films
- Ion Beam Sputtering (material blends)
 - High LDT Quasi-Rugate coatings for ultra-fast through CW applications from NUV to NIR



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NORTHROP GRUMMAN

SYNOPTICS®

Ion Beam Sputtering

Specializing in Quasi-Rugate Mixed Oxide Thin Films

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- Ion Beam Sputtering (conventional)
 - Stable low loss oxide films
 - Robust and environmentally stable
 - Discreet material coatings utilizing $\text{HfO}_2/\text{SiO}_2$ or $\text{Ta}_2\text{O}_5/\text{SiO}_2$ multi layer designs
- Ion Beam Sputtering (material blends)
 - Quasi-Rugate AR coatings from 355nm to 2200nm
 - HfO_2 - SiO_2 and Ta_2O_5 - SiO_2 material blends allow for "index of refraction" tuning
 - Reflectivity losses below 50ppm for selected applications
 - Highest demonstrated Laser Damage Thresholds for Ion Beam Sputtered films

