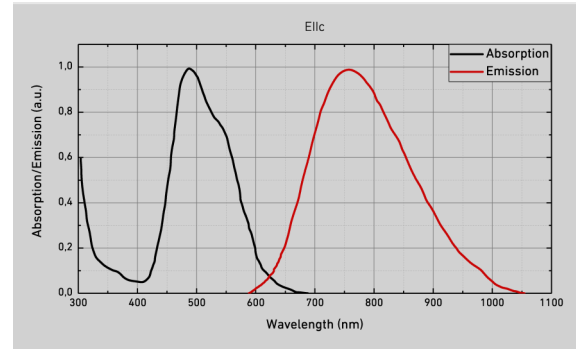


Ti:Sapphire crystal blank (60 x 60 mm)



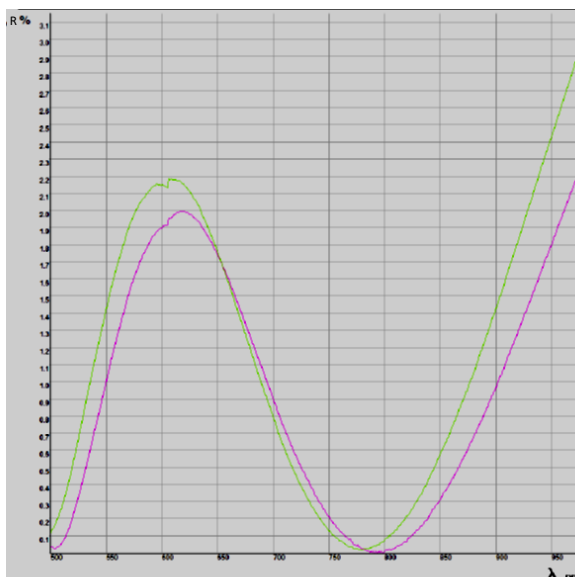
Absorption and emission curves

Material features

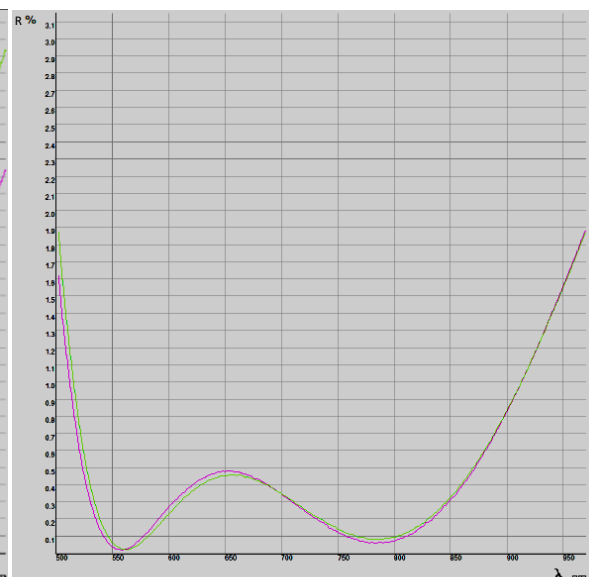
- Titanium doping is from 0,02 % to 0,3 % atm;
- Absorption coefficient is $0,2 \text{ cm}^{-1}$ to 6 cm^{-1} @ 532 nm (E//c axis);
- FOM is from 100 (for high doped material) to >200 for low doping material. Annealing the boule under strongly reducing atmosphere in order to achieve good balance between Ti^{3+} and Ti^{4+} ions. That is how the Figure of Merit (FOM) is achieved 200 or more for low Titanium doping material;
- We use corrective MRF polishing technique to improve transmitted wavefront distortion to $<\lambda/5$ @ 632,8 nm.

Antireflection coatings

- Narrow band and broadband designs;
- Coating design and deposition technique are adopted for vacuum and cryogenic temperature environment;
- Laser induced damage threshold:
 - $>7 \text{ J/cm}^2$ @ 532 nm; 5 ns; 10 Hz;
 - $>3 \text{ J/cm}^2$ @ 800 nm; 200 ps; 10 Hz.

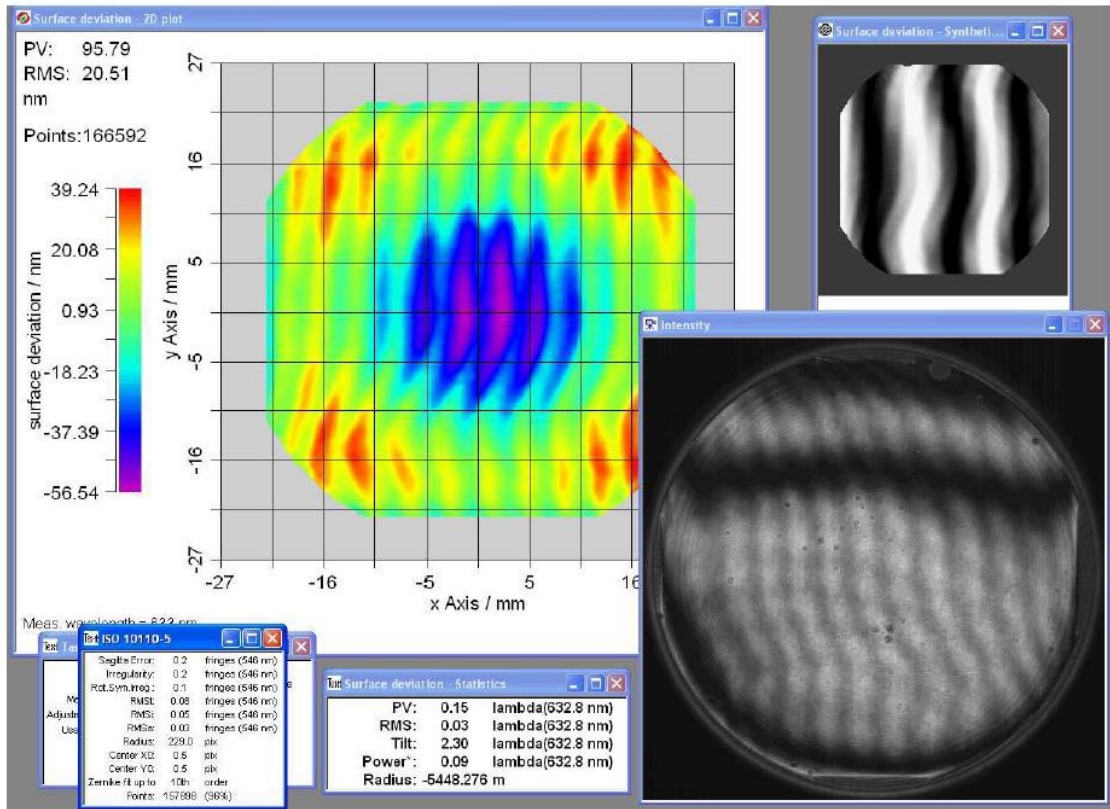


Narrow band coating

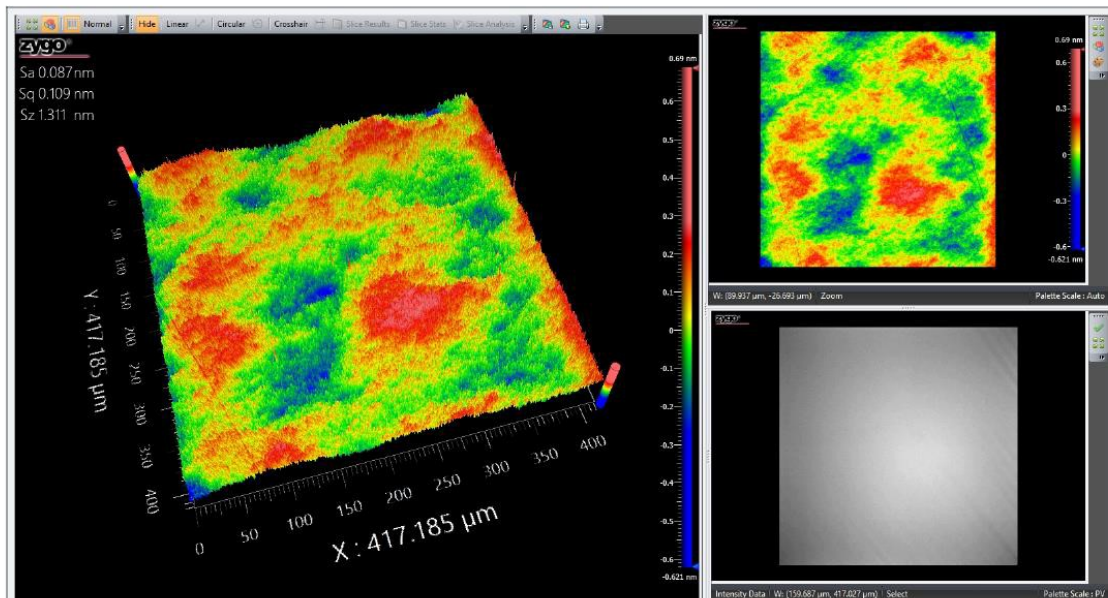


Broadband coating

Advanced polishing



Interferogram of large 50x50mm Ti:Sapphire crystal flatness



Surface roughness (<math><1\text{\AA}</math> PV) measurement result of our standard $\phi 6 \times 20$ mm crystal