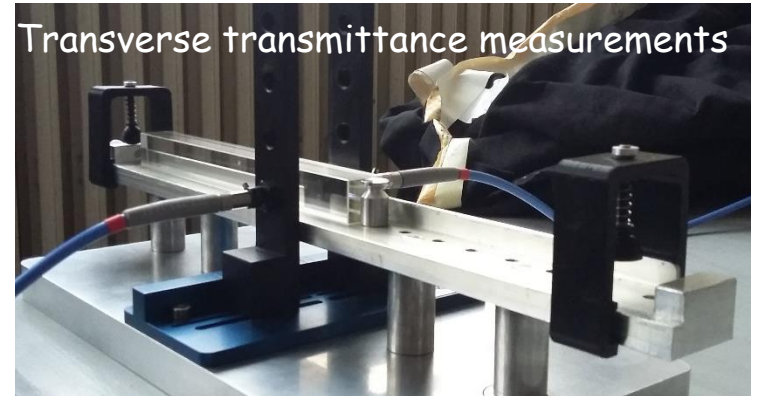


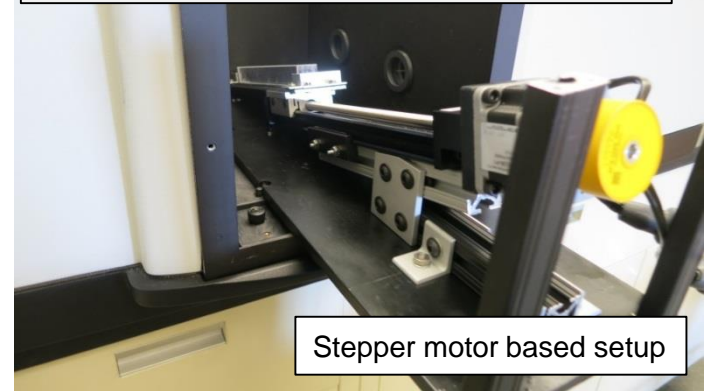
- ❑ Optical Transmittance (L/T)
- ❑ Radiation Hardness



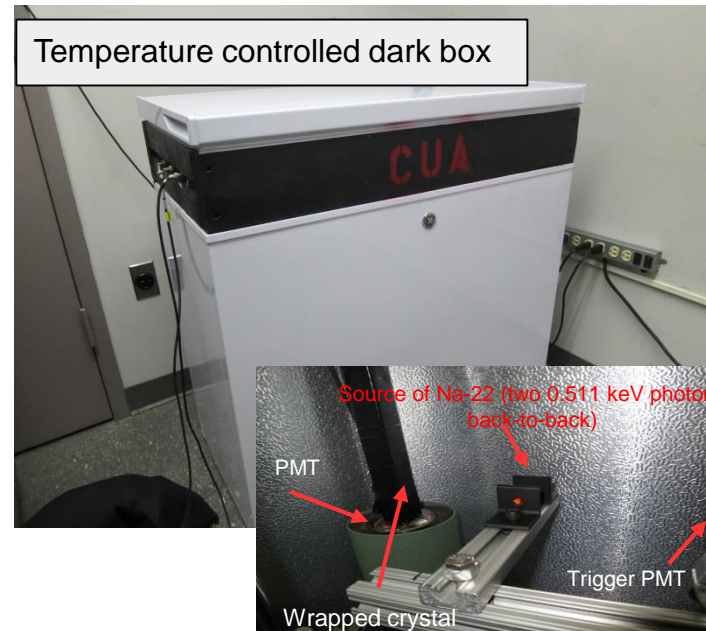
- Panoramic irradiation facility available (^{60}Co sources):
 - 5000 Gy/h at 10 cm
 - 300 Gy/h at 35 cm
 - 6 Gy/h at 260 cm
- ALTO facility can provide 50 MeV electrons up to $1\mu\text{A}$. A Proton beam (Tandem) is also available

- ❑ Visual inspection
- ❑ Mechanical dimensions
- ❑ Optical Transmittance (L/T)
- ❑ Light yield and timing
- ❑ Chemical and surface analysis
- ❑ Irradiation, Xray

Spectrophotometer with integrating sphere
(NSF MRI) in dedicated crystal lab

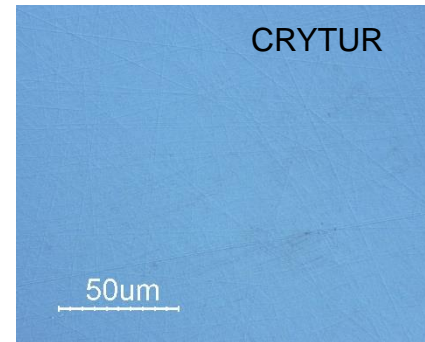
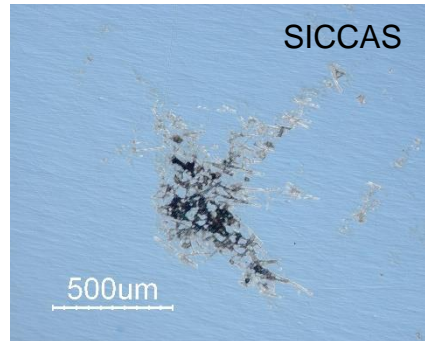
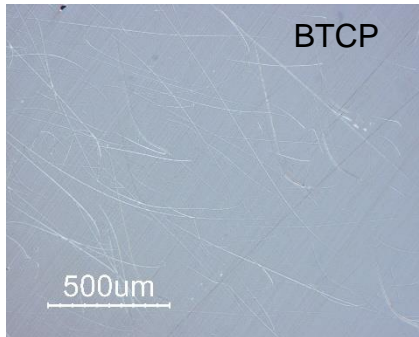
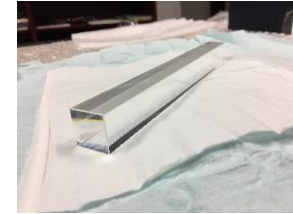


Temperature controlled dark box



Example: *Surface Analysis*

□ Typical crystal surface quality

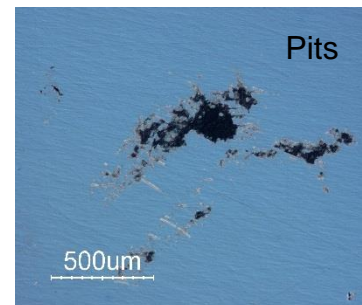
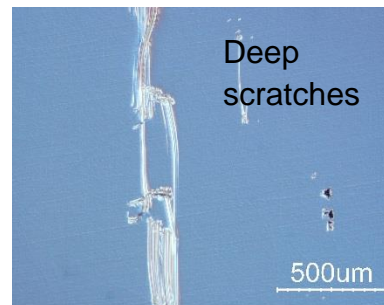
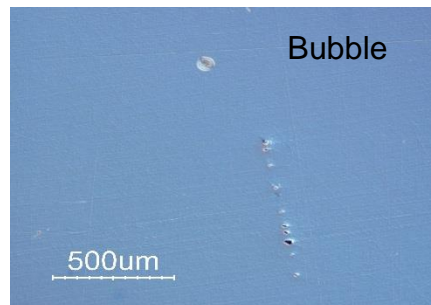


Out-of-business

Measurements:
scanning microscope in
collaboration with VSL

- Scratches applied in a well-defined manner may benefit crystal properties

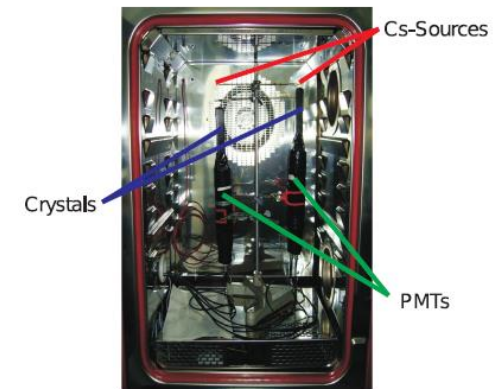
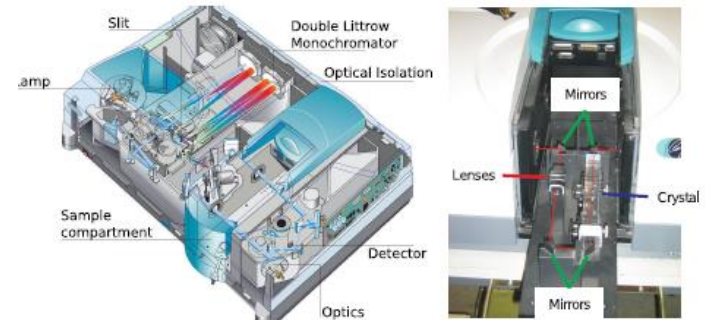
□ Looking deeper into defects: SICCAS 2017 crystals



- Defects result in high, but non-uniform light yield

❑ Optical Transmittance (L/T)

❑ Crystal light yield and timing



❑ Radiation Hardness and recovery

➤ Co-60 sources

