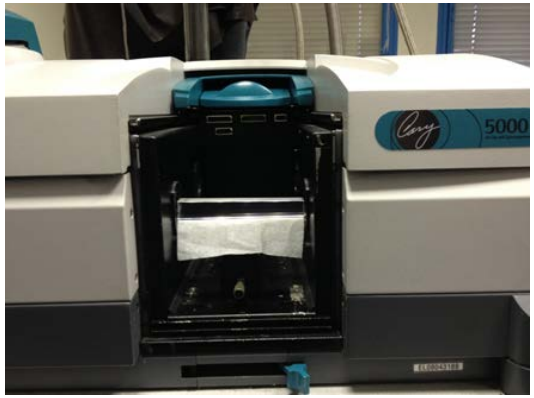
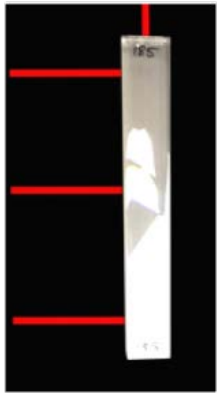
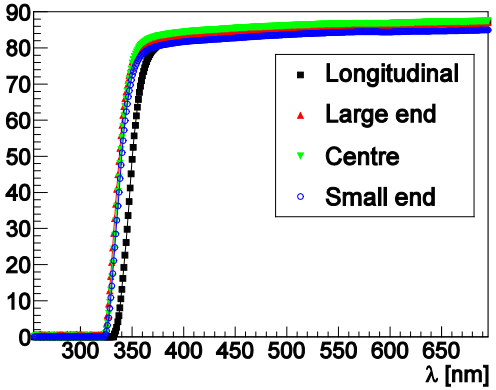
IPN-Orsay

- IPN-Orsay group: Gabriel Charles, Frédéric Georges, Giulia Hull, Carlos Munoz-Camacho
- Optical Transmittance (L/T)
  - Varian Cary 5000 spectrometer
  - Setup was commissioned with BTCP crystals on loan from Giessen
  - To accommodate crystals of lengths greater than 15 cm a more versatile configuration with a fiber-based spectrometer is being built





- Crystal light yield and timing
  - A setup is currently being tested with cosmic rays



- 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

At ~1m 30 Gy in ~30 min

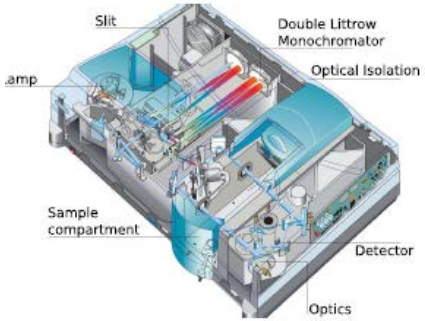
Laboratoire de Chimie Physique (Orsay)

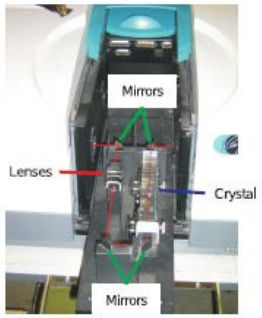
Univ. Giessen

JUSTUS-LIEBIG-UNIVERSITÄT GIESSEN

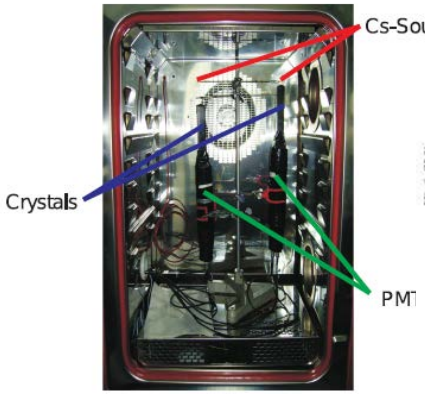
- Giessen group: Valera Dormenev, Rainer Novotny, Kai Brinkmann, …

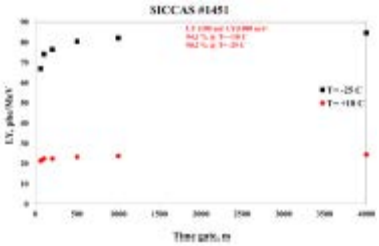
- Optical Transmittance (L/T)
  - Modified Varian Cary 5000 spectrometer



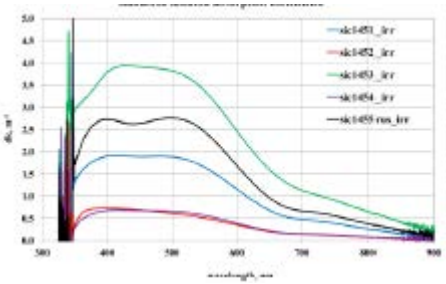


- Crystal light yield and timing
  - Cs-137 source and calibrated 2-inch PMT (Hamamatsu R2059-01) with QE(420nm)=24%.
  - Temperature control with accuracy and stability of order 0.1 C
  - Anode signals digitized with charge sensitive ADC (LeCroy 2249W)





- Radiation Hardness and recovery
  - Co-60 sources
  - Integral dose 30 Gy for 10 minutes
  - Measurements performed at RT

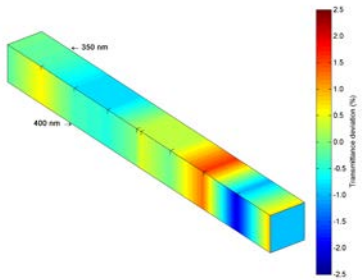


CUA/CU

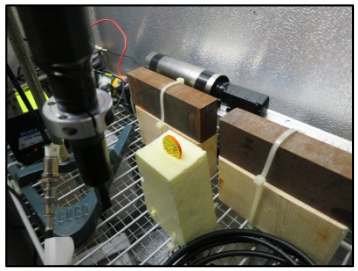
THE CATHOLIC UNIVERSITY of AMERICA

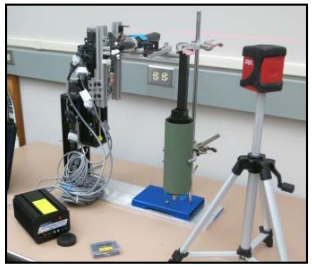
- CUA/CU: Marco Carmignotto, Salina Ali, Arthur Mkrtchyan, Tanja Horn, CU

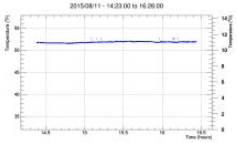
- Optical Transmittance (L/T)
  - Perkin-Elmer Lambda 750 spectrometer
  - Setup was commissioned with BTCP crystals on loan from Giessen, reproducibility ~0.2%

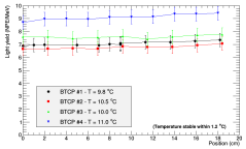


- Crystal light yield and timing
  - Na-22 source and 2-inch PMT (XP2262)
  - Temperature control with accuracy and stability better than 1 C
  - Anode signals digitized with charge sensitive ADC (LeCroy 2249W)

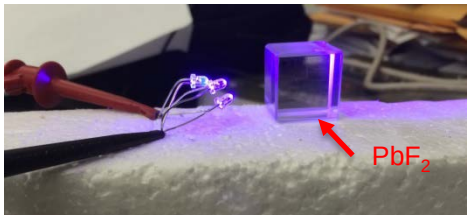






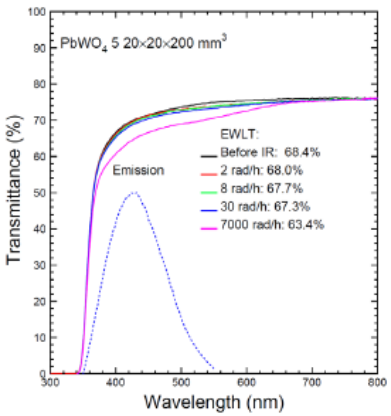


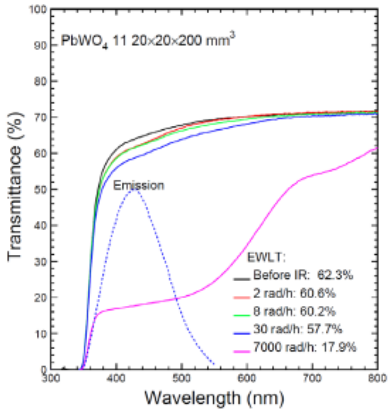
- Radiation hardness and recovery
  - Exploring an x-ray irradiation system (Faxitron CP-160)



Cross checks: Caltech

- Caltech group: Renyan Zhu, …
- Optical Transmittance (L/T)
  - Perkin-Elmer Lambda 950 spectrometer
  - Reproducibility: 0.15%
- Crystal light yield and timing
  - Cs-137 source and 2-inch PMT (Hamamatsu R2059) and quartz window
  - Systematic uncertainty: 1%
- Radiation Hardness and recovery
  - 50 curie Co-60 for irradiation at low dose rates (2, 8, 30 rad/h)
  - 7000 curie Cs-137 for high dose rate (7160 rad/h)





JLab

- Optical Transmittance – cross checks
  - Halogen lamp, integrating sphere, holder table for crystal, optics
  - Reproducibility ~few percent – main uncertainty is crystal orientation
- Prototype tests with beam, e.g., light monitoring and recovery
  - Light monitoring and recovery
  - Temperature controlled frame
  - Energy resolution
- Readout and triggering