

# AGENDA

Frascati - September 9, 2014

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**some news on:** PWO production  
improvement of light collection

**1. on PWO crystals:**

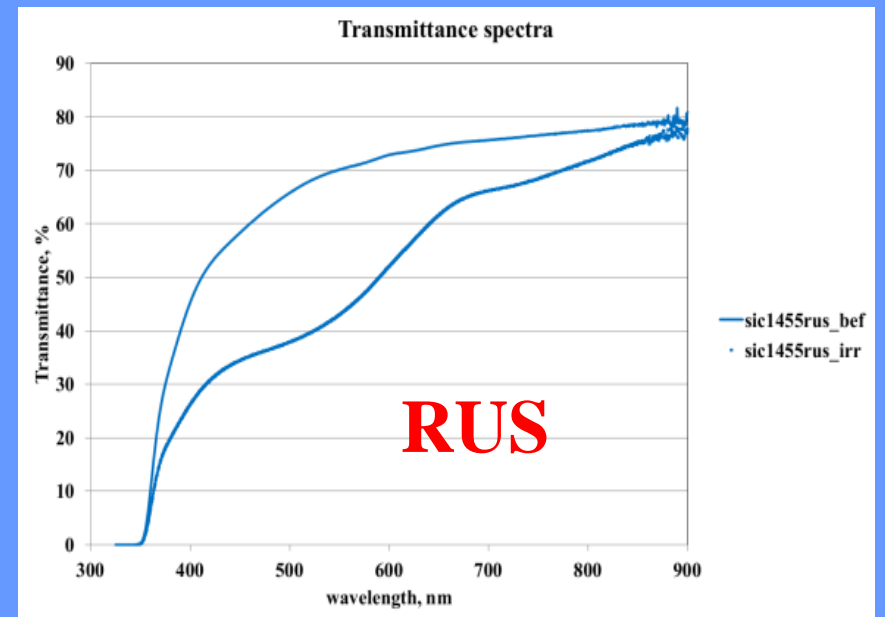
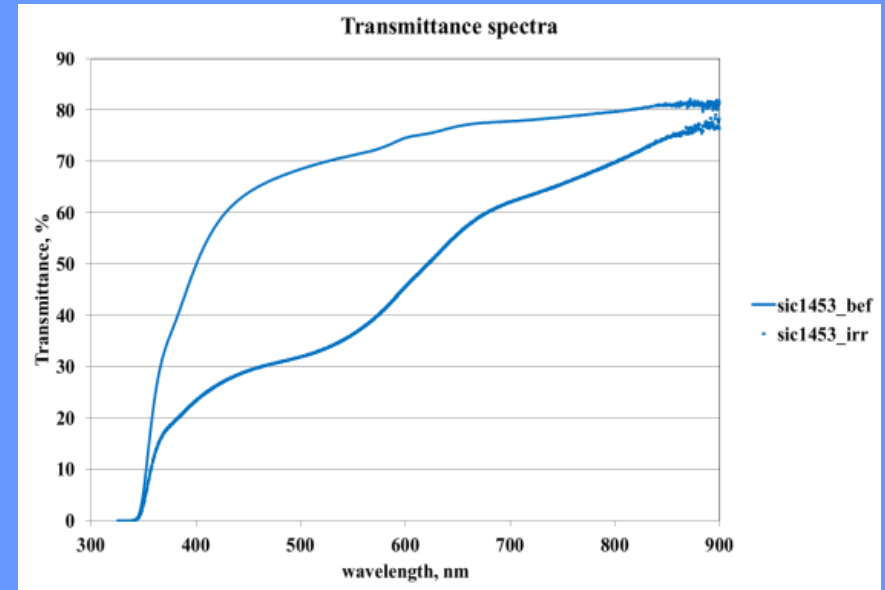
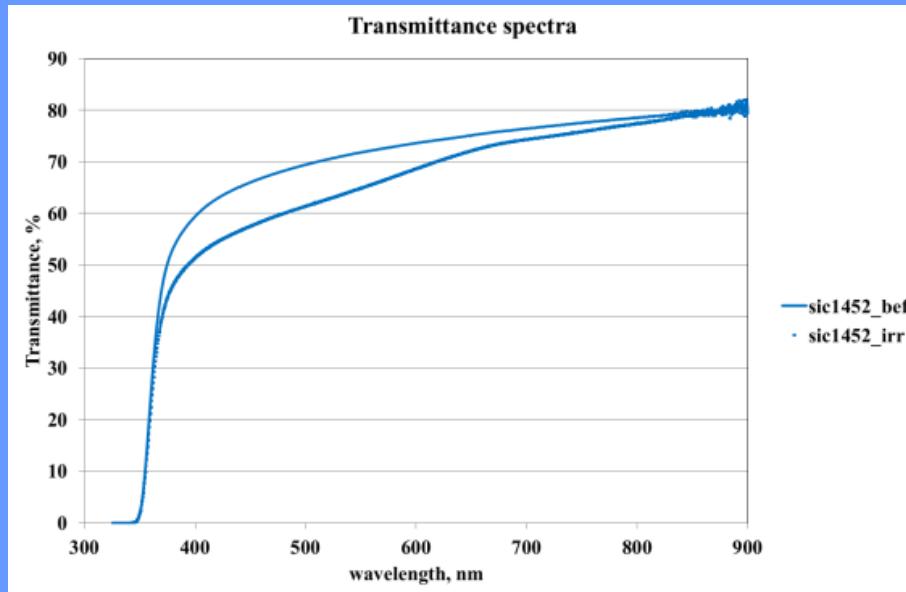
**first test crystals from SICCAS**

- use of raw material mixture from Moscow
- use of Chinese raw material

**5 full size crystals have been delivered (Type 11)**

# transmission

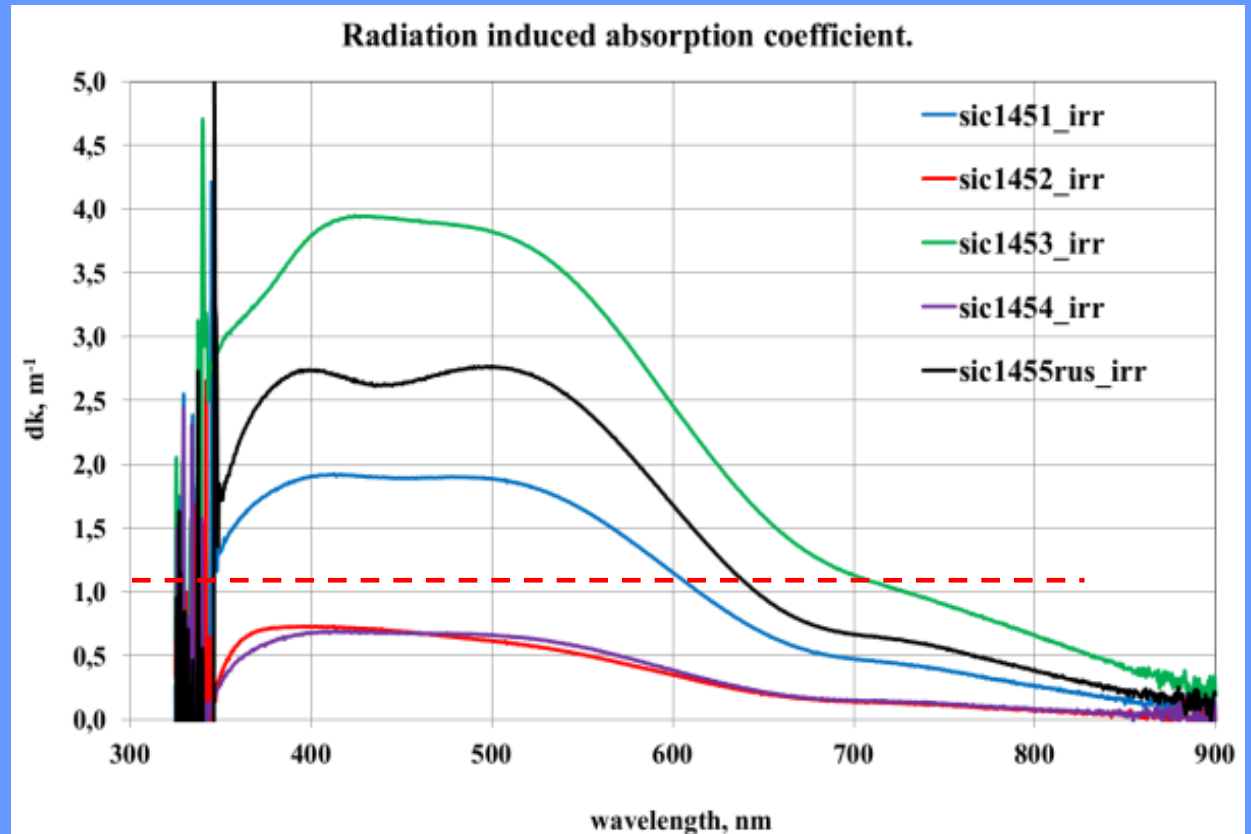
## before and after irradiation

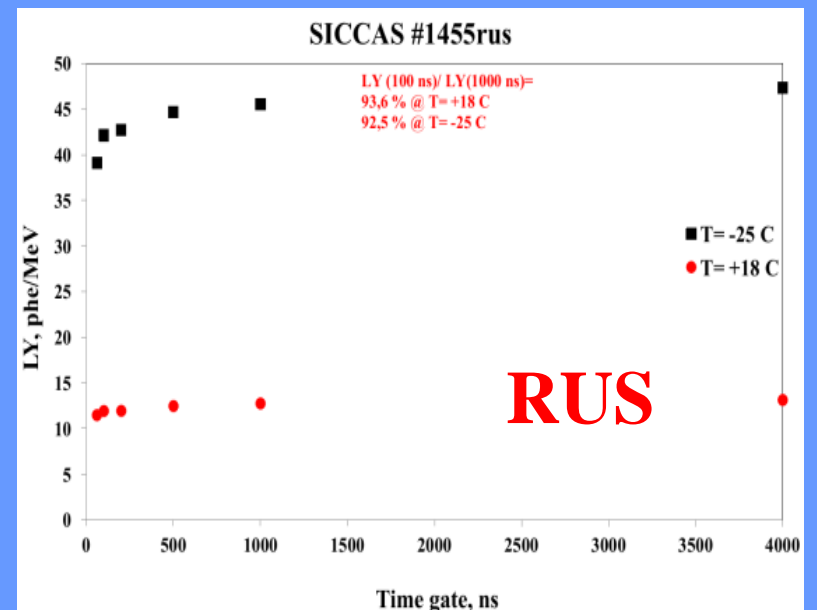
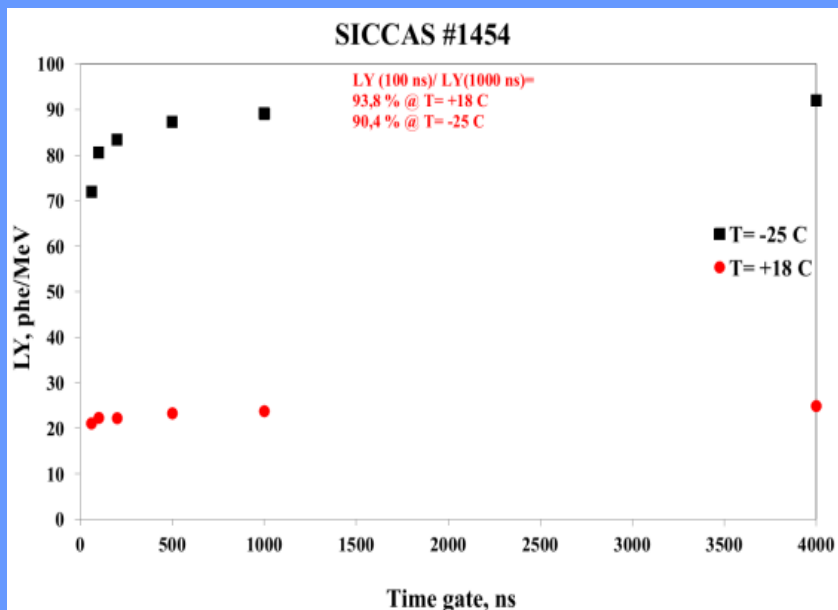
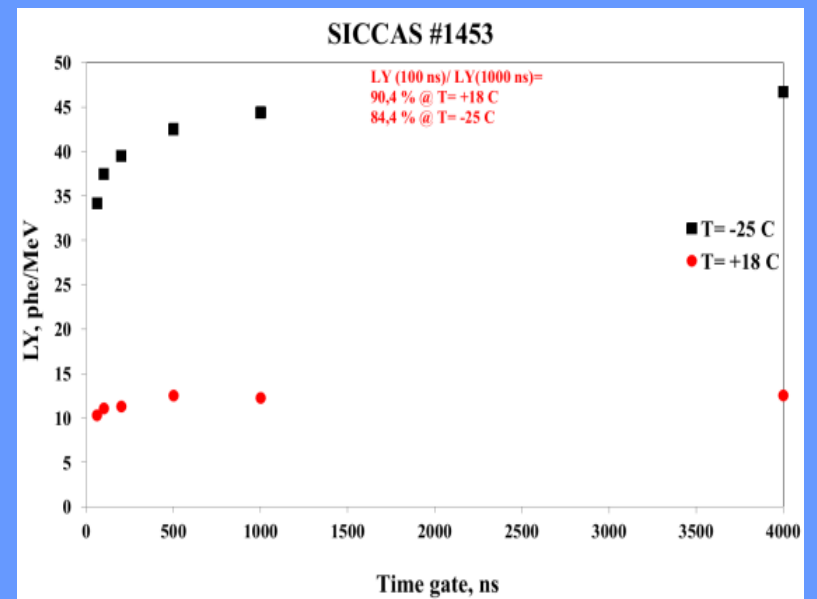
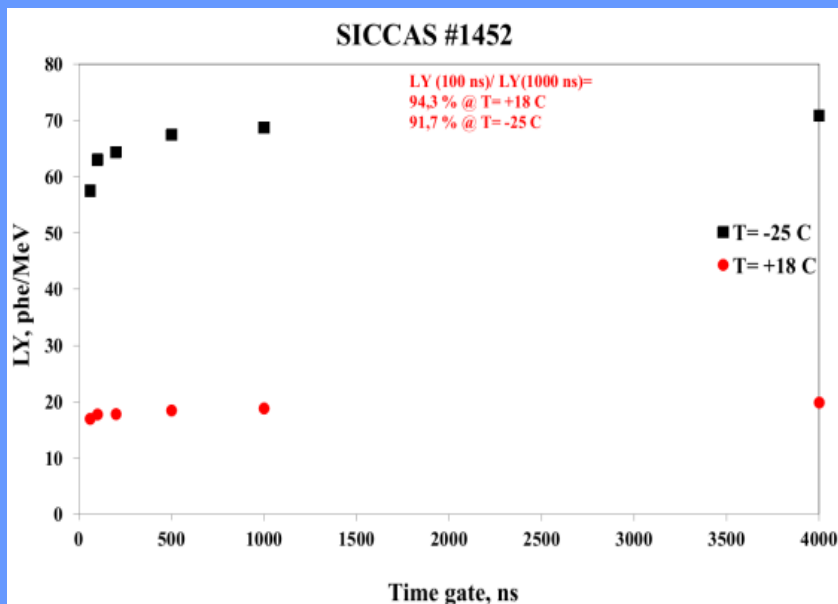


# optical transmission

ID	T 360 nm	T 420 nm	T 620 nm
SIC_1451	19.0	58.8	73,8
SIC_1452	25,2	62.9	74.2
SIC_1453	23.2	57.8	75.3
SIC_1454	35.0	67.2	77.8
SIC_1455rus	10.1	52.5	73.5

# radiation hardness





ID	light yield LY phe / MeV	LY(100ns)/LY(1μs) %	LY(-25°C) / LY(+18°C) @ 100ns gate
SIC_1451	22.3	94.1	3.32
SIC_1452	17.8	94.3	3.55
SIC_1453	11.1	90.4	3.38
SIC_1454	22.3	93.8	3.61
SIC_1455rus	11.9	93.6	3.53

## conclusions:

- use of Russian raw material improved but **not acceptable**
- 2 out of 4 crystals acceptable

next delivery was announced for August !

# CRYTUR @ Turnov

- visit at factory in August
- (support from  
NeoChem, RINP Minsk)



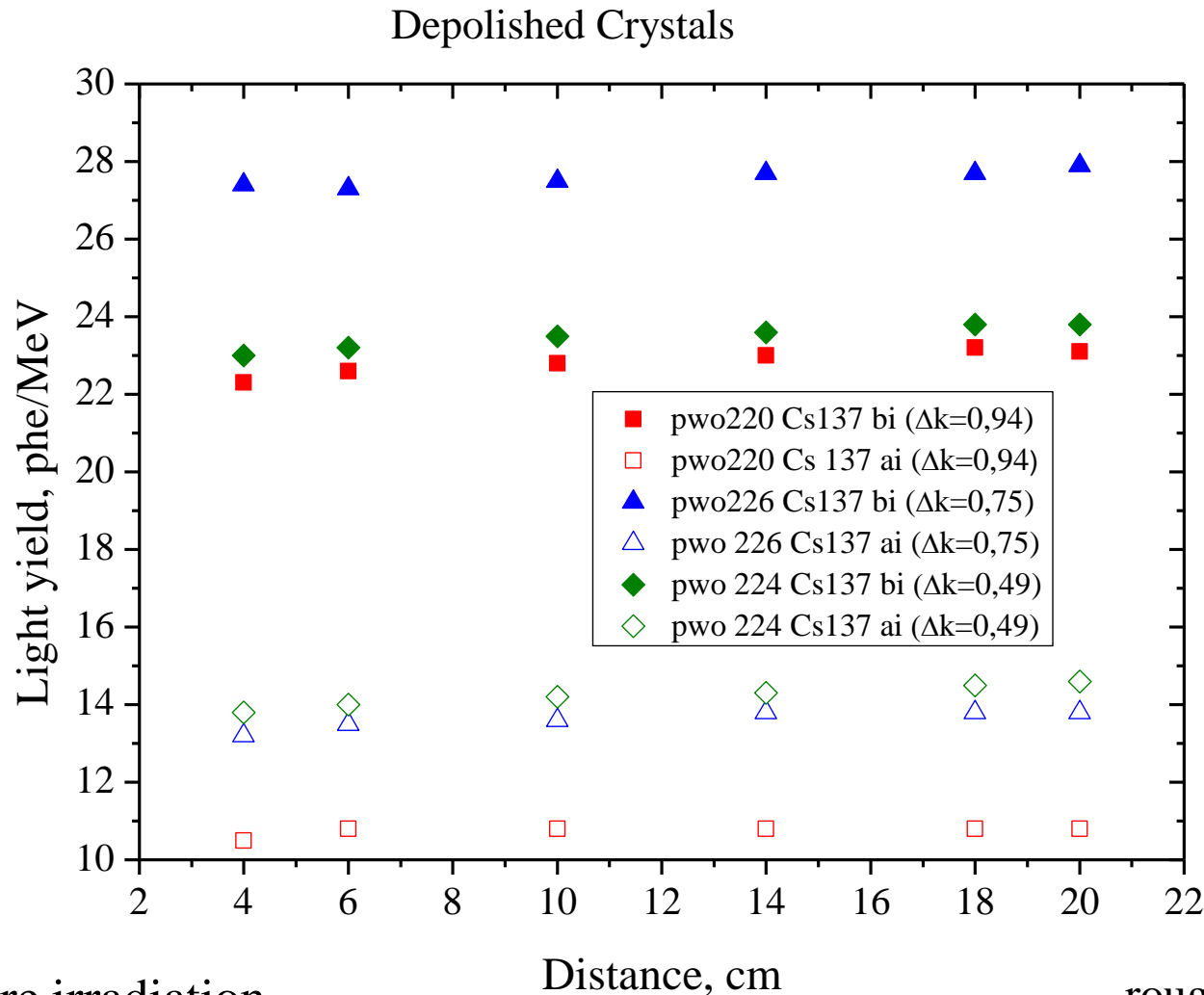
- **impressive infra structure**
- **first oven close to be assembled**
- **detailed discussion on all production steps**
- **technology very close to BTCP**
- **use of BTCP raw material**
  
- **first full size ingots scheduled for October**
- **providing test setup to guarantee similar procedures**
- **radiation hardness tests @ GI**
- **close collaboration with BNL and Jlab (visit!)**

## **further news:**

- **APD mass production started**
- **beam test with ASIC (report)**
  - performance close to specs**
  - optimization of FE electronics**
  - reduction of noise and pick-up**
- **test matrix composed of unpolished crystals (one side surface)**
  - in preparation**



# light yield non-uniformity of depolished (one lateral side) crystals with different radhard



Type 2

- bi= before irradiation
- ai = after irradiation

roughness parameter  
Ra = 0,3  $\mu\text{m}$

# comparison of the LY before and after de-polishing procedure

PWO #	LY [phe/MeV] polished	LY [phe/MeV] de-polished
220	29,0	23,1
226	31,7	27,9
224	27,9	23,8

**T = +18°C, time gate 1 $\mu$ s, Cs137, source position 20 cm from PMT.  
Only for PWO #224 both measurements were done with the same PMT**