# Status report about PWO production at CRYTUR

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- CRYTUR starts PWO production in summer 2014
- June 2016: The production of crystals with geometry of PANDA EMC was started
- May 2021: production and tests of 200 samples in frames of

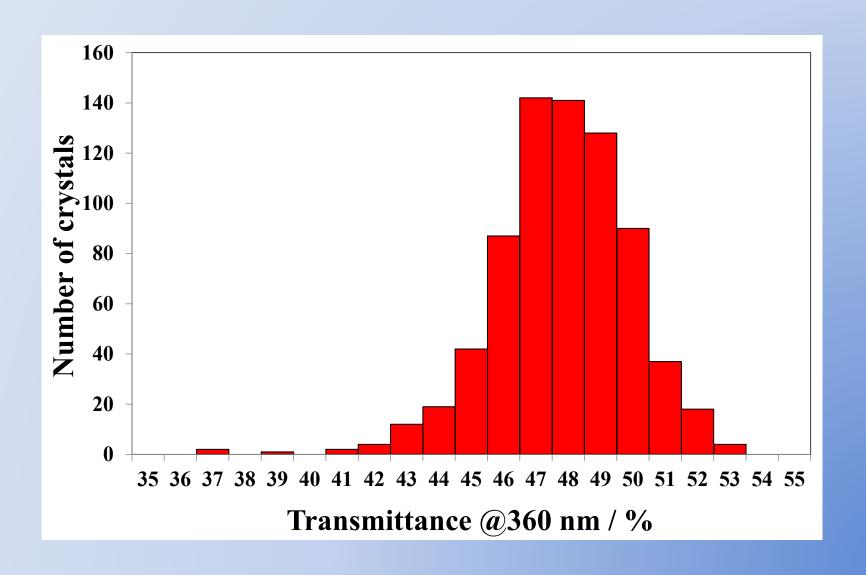
Prague contract were finished	<b>TYPE</b>	<b>Produced</b>	Accepted	Rejected
S	3L	61	60	1
	3R	1	1	. 0
• 729 samples with PANDA geometries were	<b>4</b> L	59	59	0
	4R	59	59	0
produced by CRYTUR,	5L	59	59	0
714 samples were accepted	5R	60	60	0
714 Samples were accepted	<b>6</b> L	45	45	0
	6R	40	40	0
	7L	59	59	0
	7 <b>R</b>	61	60	1
	8L	42	42	0
	8R	46	46	0
	10L	6	4	. 2
	10R	0	0	0
	11L	98	88	10
	11 R	33	32	1

714

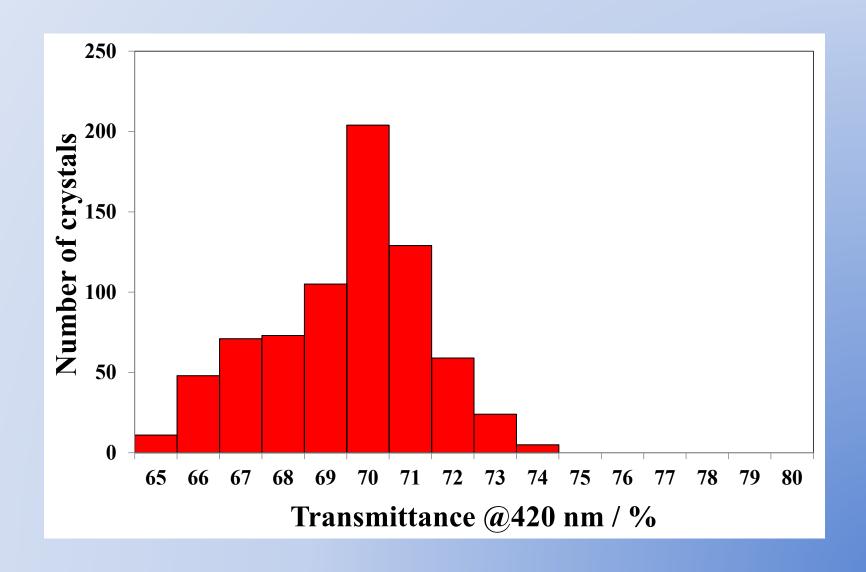
**729** 

**Total** 

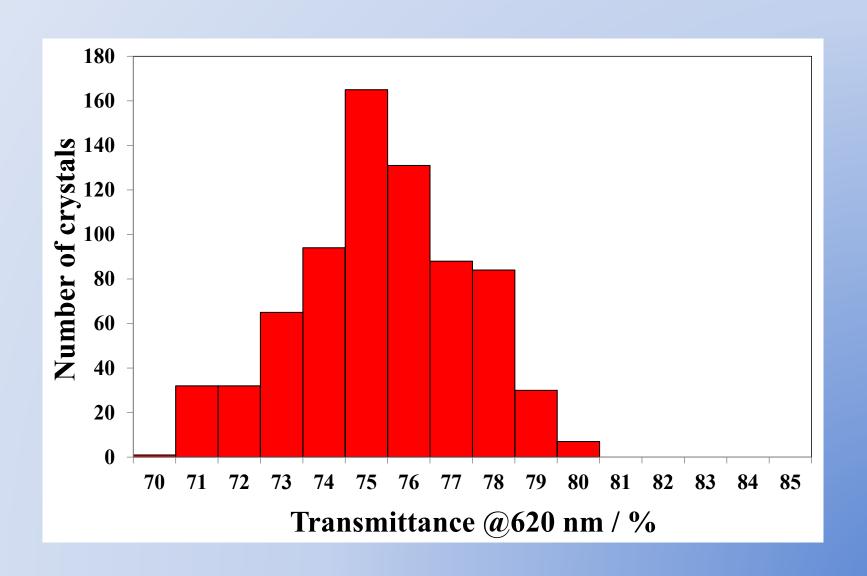
#### Distribution of the transmittance @ 360 nm



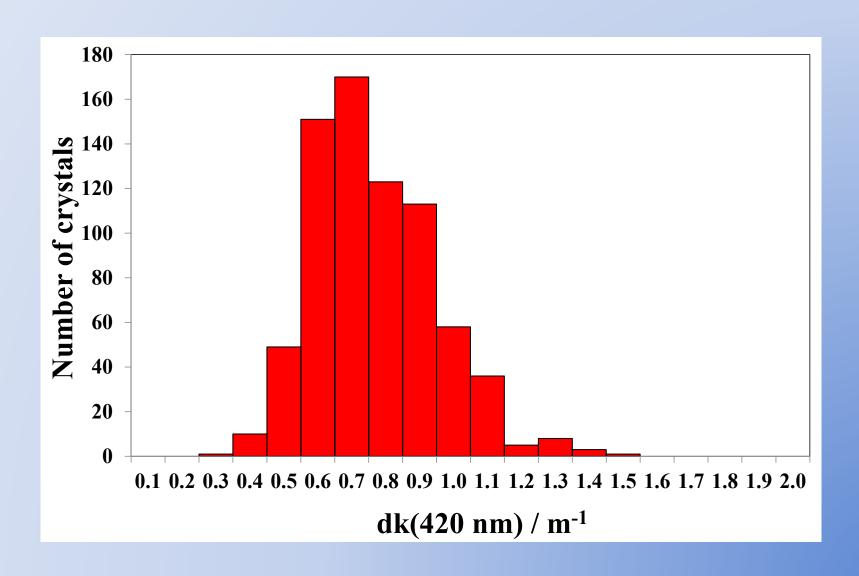
#### Distribution of the transmittance @ 420 nm



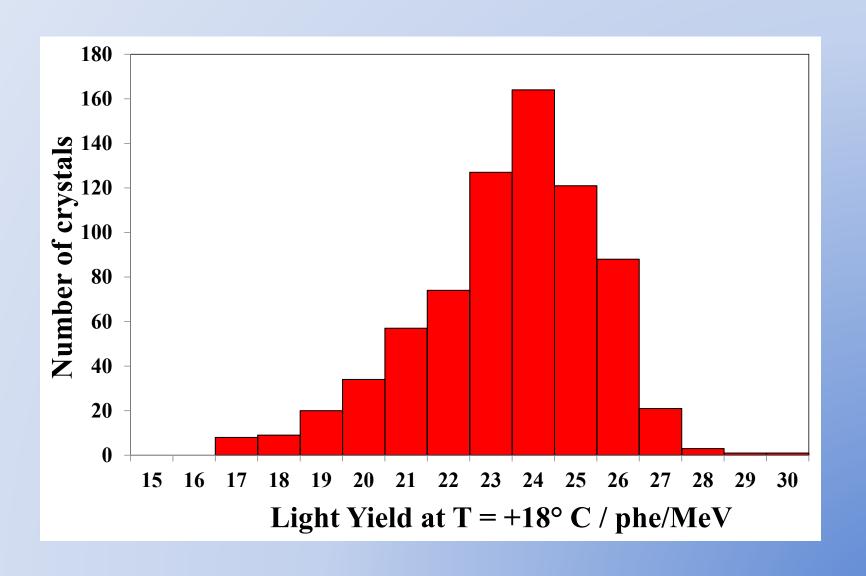
#### Distribution of the transmittance @ 620 nm



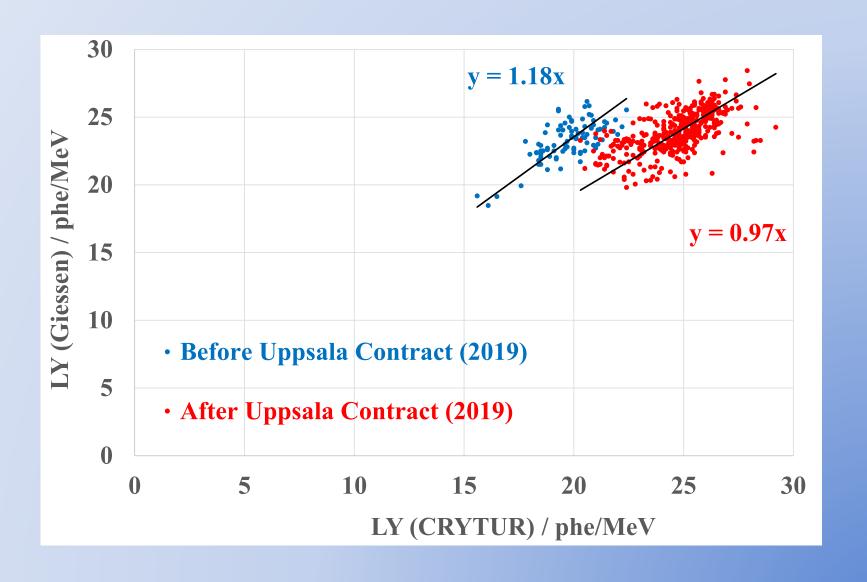
## Distribution of radiation induced absorption coefficient



#### Distribution of the Light Yield



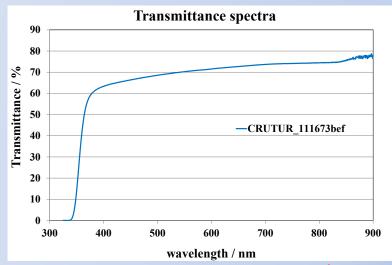
#### Light Yield correlation: Giessen vs CRYTUR

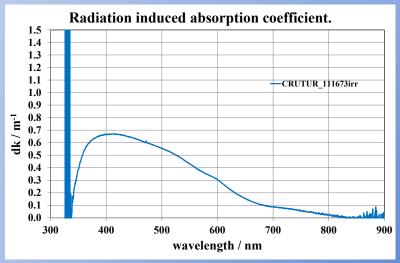


#### Crystals produced with new raw materials

CRYTUR bought few tons of new raw materials for other projects Only crystals with 20.5x20.5x200 mm dimensions were produced from new raw materials

ID#	T 360 nm [%]	T 420 nm [%]	T 620 nm [%]	LY [ph/MeV]	LY (100 ns)/LY (1µs)	dk (420 nm), m-1
111673	44.2	70.4	78.4	19.9	0.96	0.69
111688	45.2	70.7	78.5	20.1	0.95	0.74
111713	44.4	70.3	78.2	20.1	0.94	0.79
111726	41.5	67.9	78.0	18.1	0.95	0.87
111735	42.3	67.7	77.8	18.2	0.95	0.55
111761	43.8	69.7	78.4	18.8	0.95	0.60
111775	44.5	70.8	79.0	18.3	0.95	0.62
111790	44.3	70.3	78.0	17.1	0.95	0.66
111802	42.7	68.9	78.3	18.9	0.95	0.59
111813	43.7	68.8	77.5	17.3	0.96	0.61
111837	41.1	68.4	77.6	19.3	0.94	0.77





**Light yield = 20.5 phe/MeV** 

#### **Crystal production status**

Production for two slices is completed

• 215 crystals (3L, 4L/R, 5L/R, 6L/R, 7L/R, 8L types) are needed to complete 3<sup>rd</sup> slice

• Number of needed crystals

to complete 12 slices : 4168/4198

to complete 16 slices: 6186

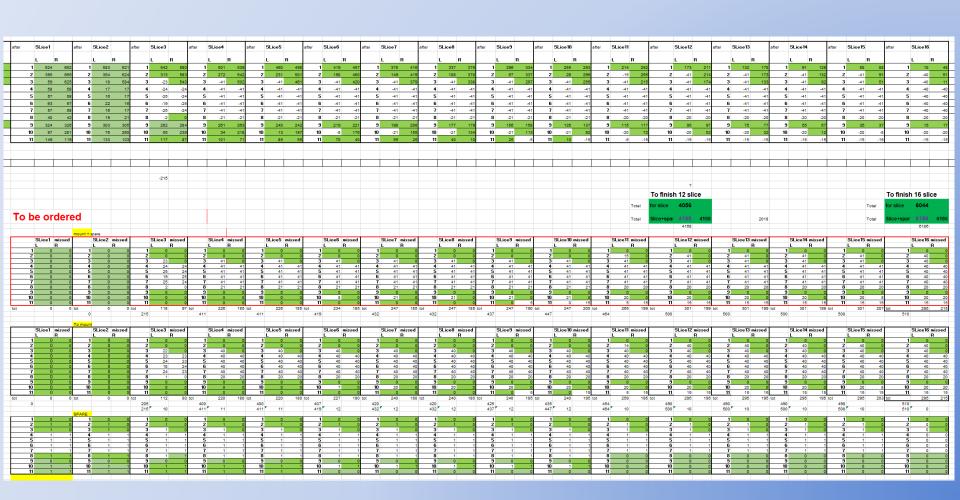
							Left				Right				Missing		already financed		To be ordered			after	SLice1			
type	total	total+spare	L	R	ВТСР	PreProd	Proto60	SICCAS	CRYTUR	Tot	ВТСР	PreProd	Proto60	SICCAS	CRYTUR	Tot	Left	Right	Left	Right	Left	Right			L	R
1	1280	1310	655	655	629	36				665	668	35				703	-10	-48			0	0		1	624	
2	1280	1310	655	655	402	34				436	668	38				706	219	-51			219	0		2	395	
3	1280	1310	655	655		40			60	100	628	37			1	666	555	-11			555	0		3	59	
4	1280	1310	655	655		40			59	99	1	39			59	99	556	556			556	556		4	58	
5	1280	1310	655	655		39			59	98		39			60	99	557	556			557	556		5	57	
6	1280	1310	655	655		29	30		45	104		28	30		40	98	551	557			551	557		6	63	
7	1280	1310	655	655		39			59	98		39			60	99	557	556			557	556		7	57	
8	640	660	330	330		19			42	61		17			46	63	269	267			269	267		8	40	
9	640	660	330	330	325	20				345	328	19				347	-15	-17			0	0		9	324	
10	640	660	330	330	95	19			4	118	285	17				302	212	28			212	28		10	97	
11	480	490	245	245		15		62	88	165	88	15			32	135	80	110			80	110		11	149	
										2289						3317										
total	11360	11640			1451	330	30	62	416		2666	323	30	0	298		3556	2630			3556	2630				
		280						CRYTUR	714																	
									Produced	5606				5606												
																Needed	6186				6186					
	spare: 30 crystals type 1 - 7																			5454						
	20 crystals			type 8	- 10				11792						8520											
		10 crystals type 11							6034	4					72.6056	i6						To be o			<b>′d</b>	

#### Crystal production status

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### Summary

- 729 crystals with PANDA EMC geometry (3L/R-11L/R) were produced by CRYTUR and tested in Giessen
- 15 crystals were rejected due to dk(420 nm) values. All other parameters satisfied to PANDA specification
- 59 more crystals will be produced in next few months as compensation for raw materials. After that production for PANDA EMC will be stopped
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New contract with CRYTUR is needed