



Richiesta Cuore_dtz Padova anno2015 cds 15/7/2014



Partecipazione alla sigla Cuore: Taffarello 80%

Tasks e deliverables(2014-2015):

- Test finale criostato @ LNGS (**14 mK con elevato carico sulla Still**)
- Finita produzione 19 torri (**circa 4 bondate dai tecnici Pd**)

Da fare CUORE:

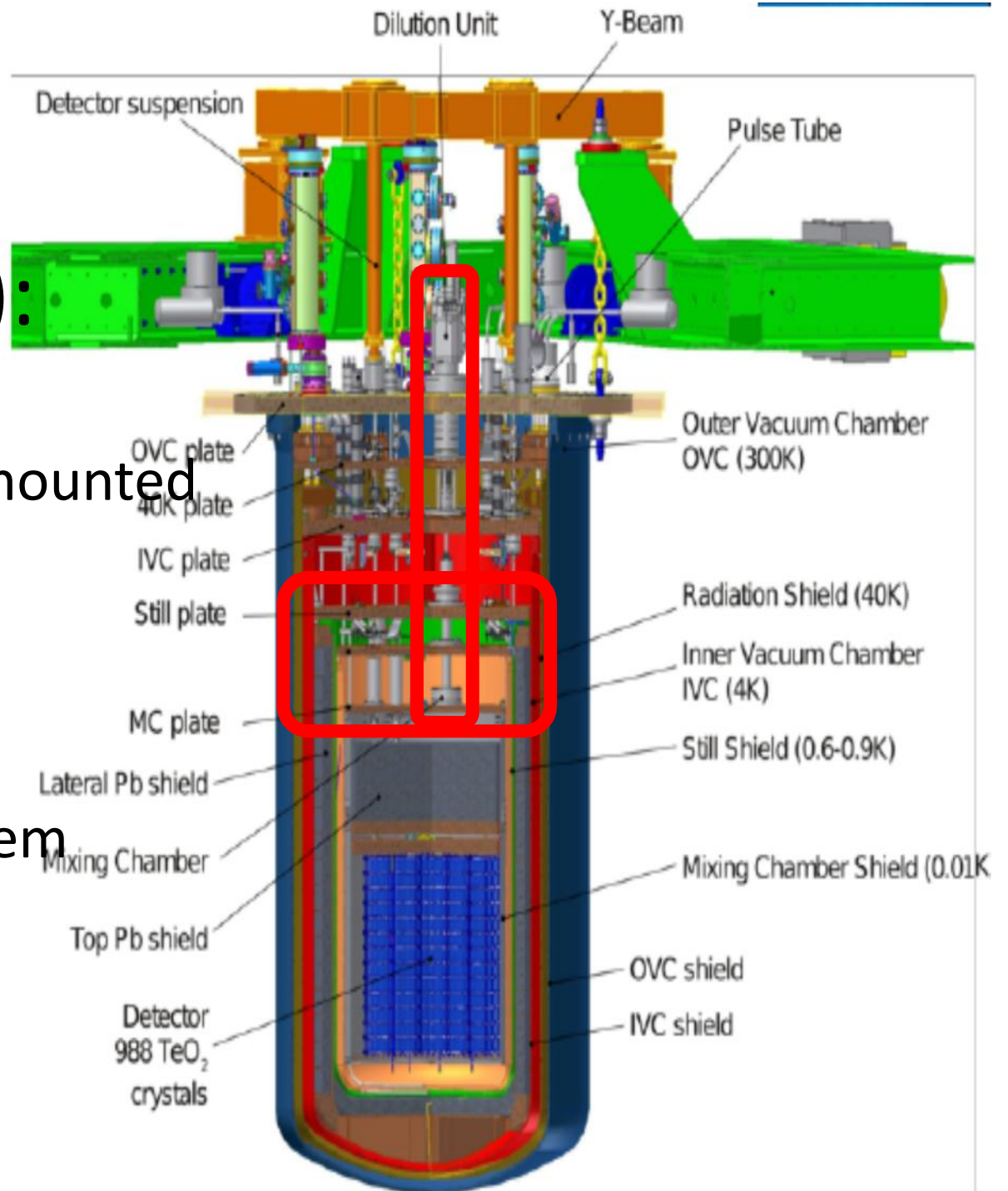
- finire l'allestimento per i primi mesi 2015,
- raffreddamento e presa dati per l'estate 2015





Phase II (Part I): Installation

- Cryostat Partially Dismounted
- Inner Plates/Stages
- Dilution Unit
- Pulse Tubes
- DU Gas Handling System
- Thermometry



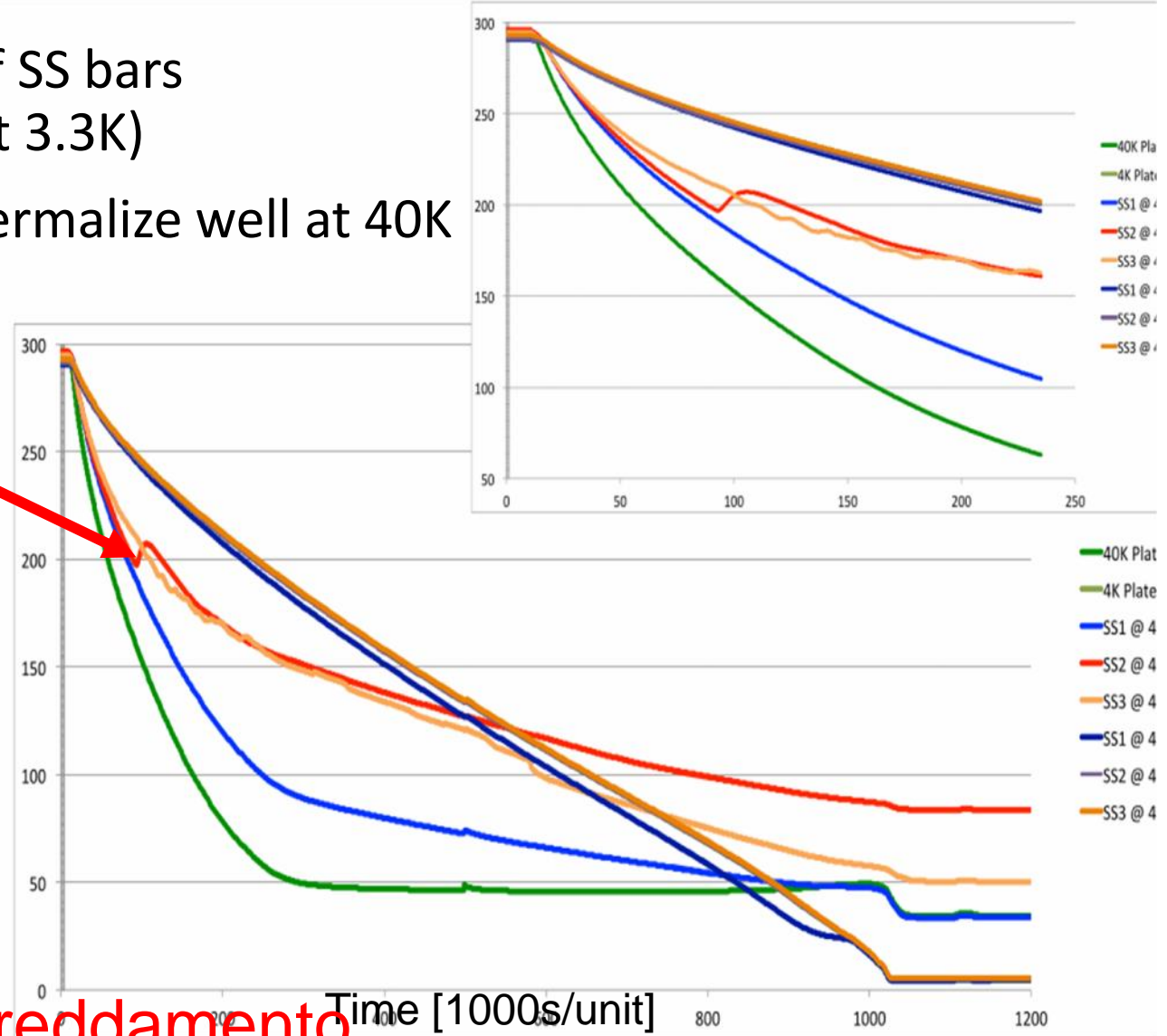


4K Plate Temperature Problem



- Poor thermalization of SS bars the cause for 4.5K (not 3.3K)
- 2/3 SS Bars did not thermalize well at 40K
 - SS2 ~80K
 - SS3 ~50K
- Temperatures began diverge at ~28h
- ~14 days to cool down to 4K

Temperature [K]



da capire altro raffreddamento...



Status Cuore0



- In October 2013 we were cooling down the detector after cryostat maintenance:
 - condensing line
 - 1K pot needle valve replacement
 - Mixing chamber temperature stabilization



Status at the last CM



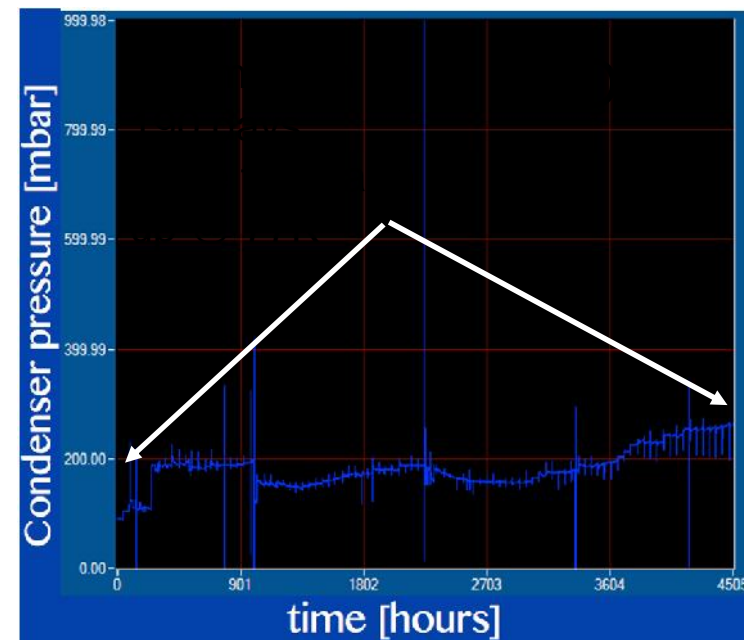
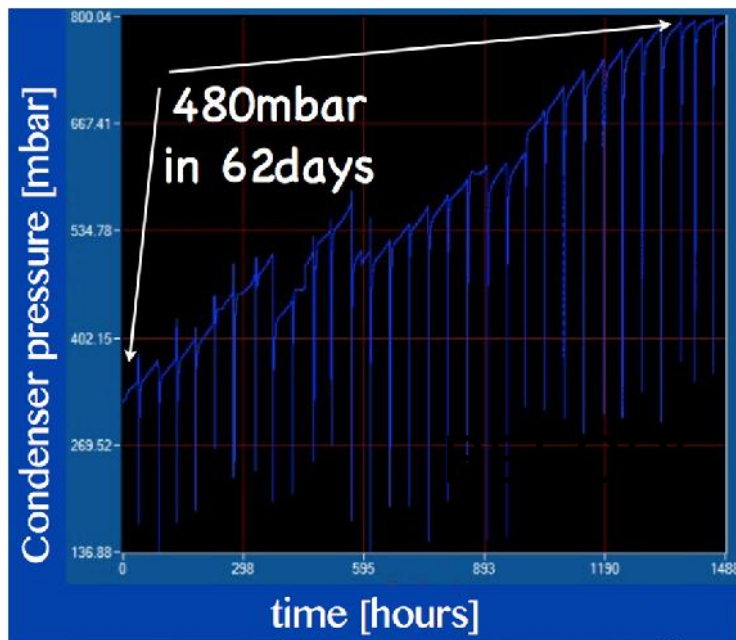
- In October 2013 we were cooling down the detector after cryostat maintenance:
 - condensing line **Lifetime**
 - 1K pot needle valve replacement **Noise**
 - Mixing chamber temperature stabilization **Drift**



Condensing line

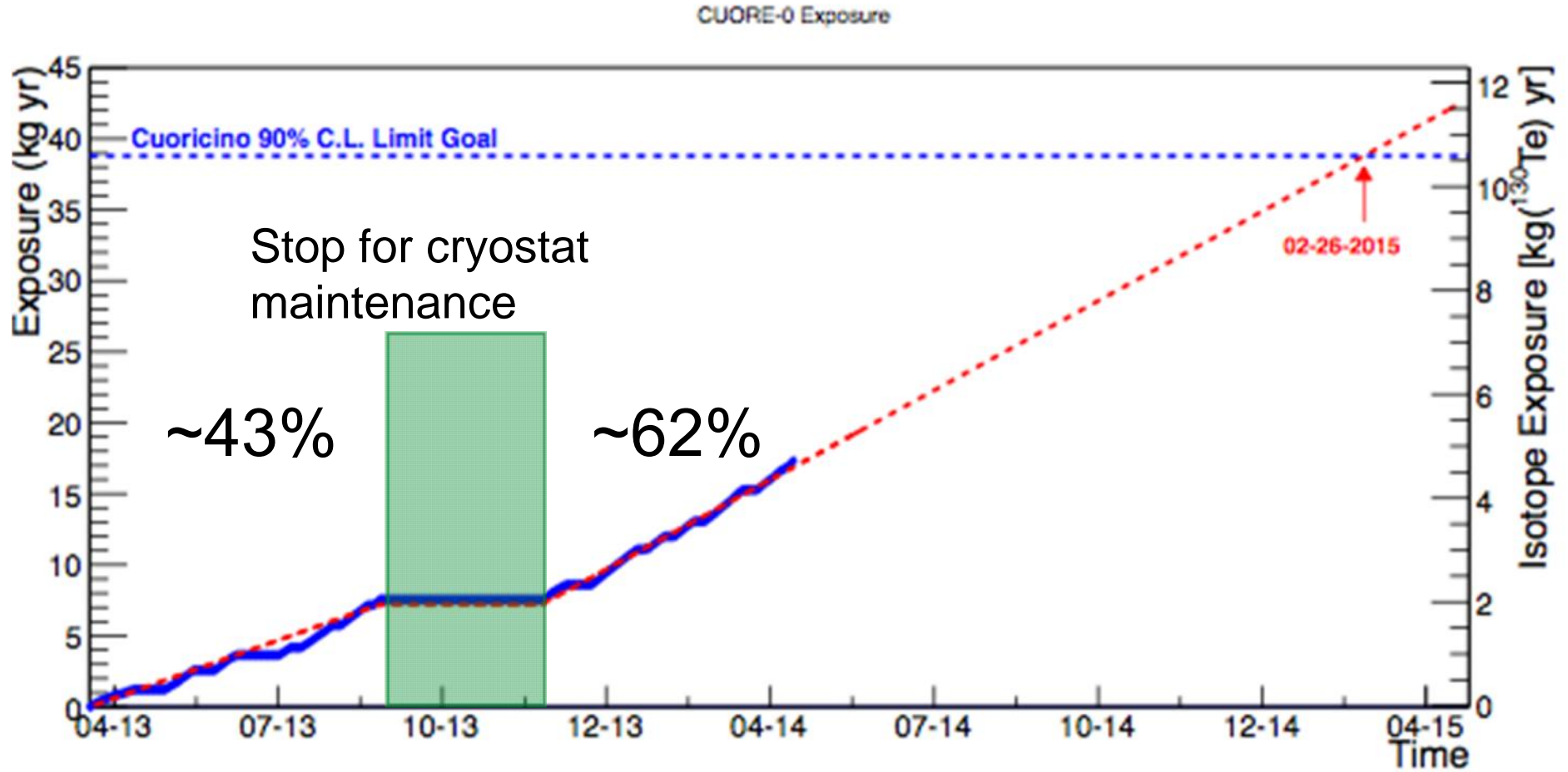


- There was an intake in the mixture circuit which caused a plug of the condensing line:
 - Cuoricino ~ 2 mbar/day, Cuore-0 (before) ~ 7.7 mbar/day
- After the maintenance (disassembly and re-assembly of the line, after individual leak test on its components):
 - **Cuore-0 (now) < 1.4 mbar/day**





Livetime exposure

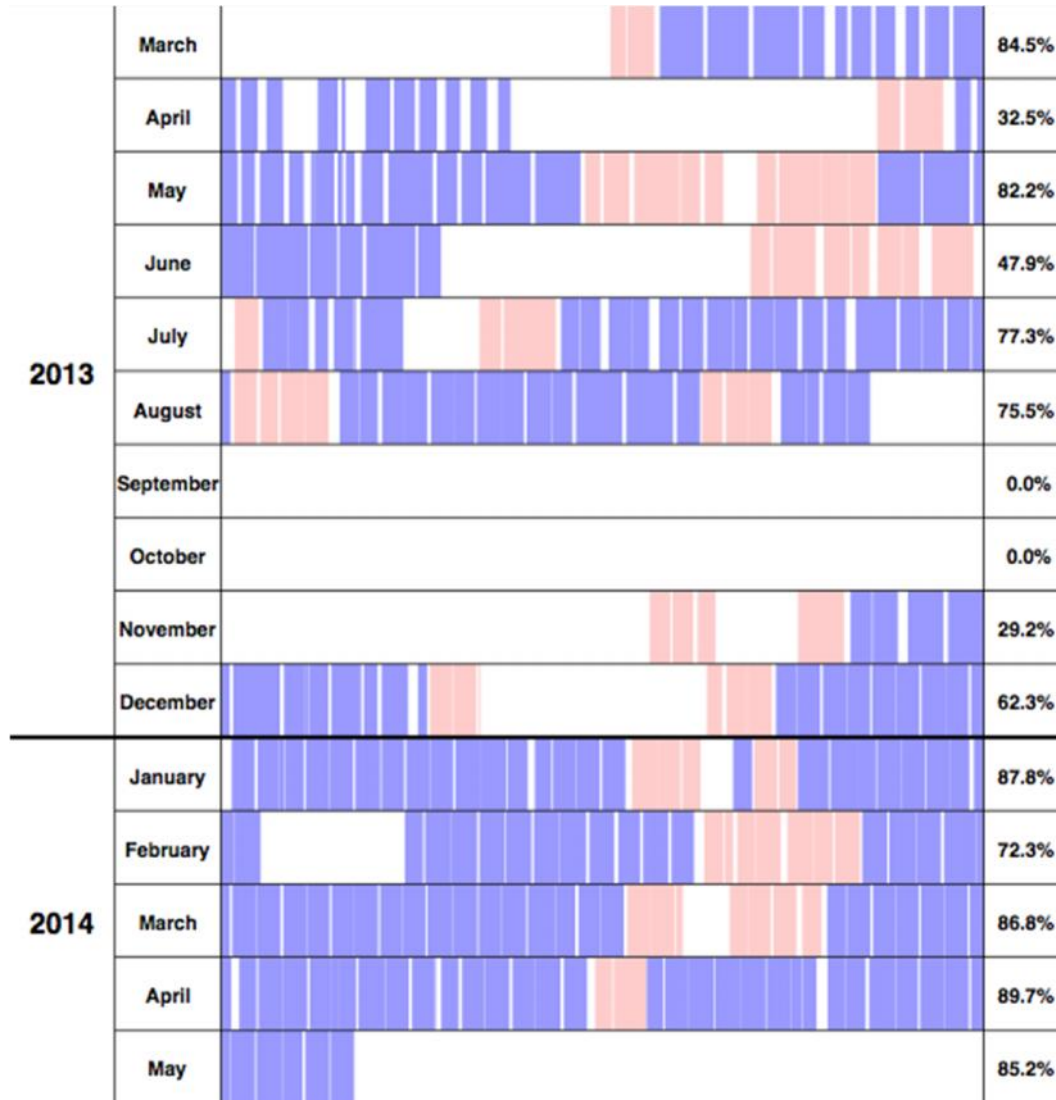




Livetime improvement

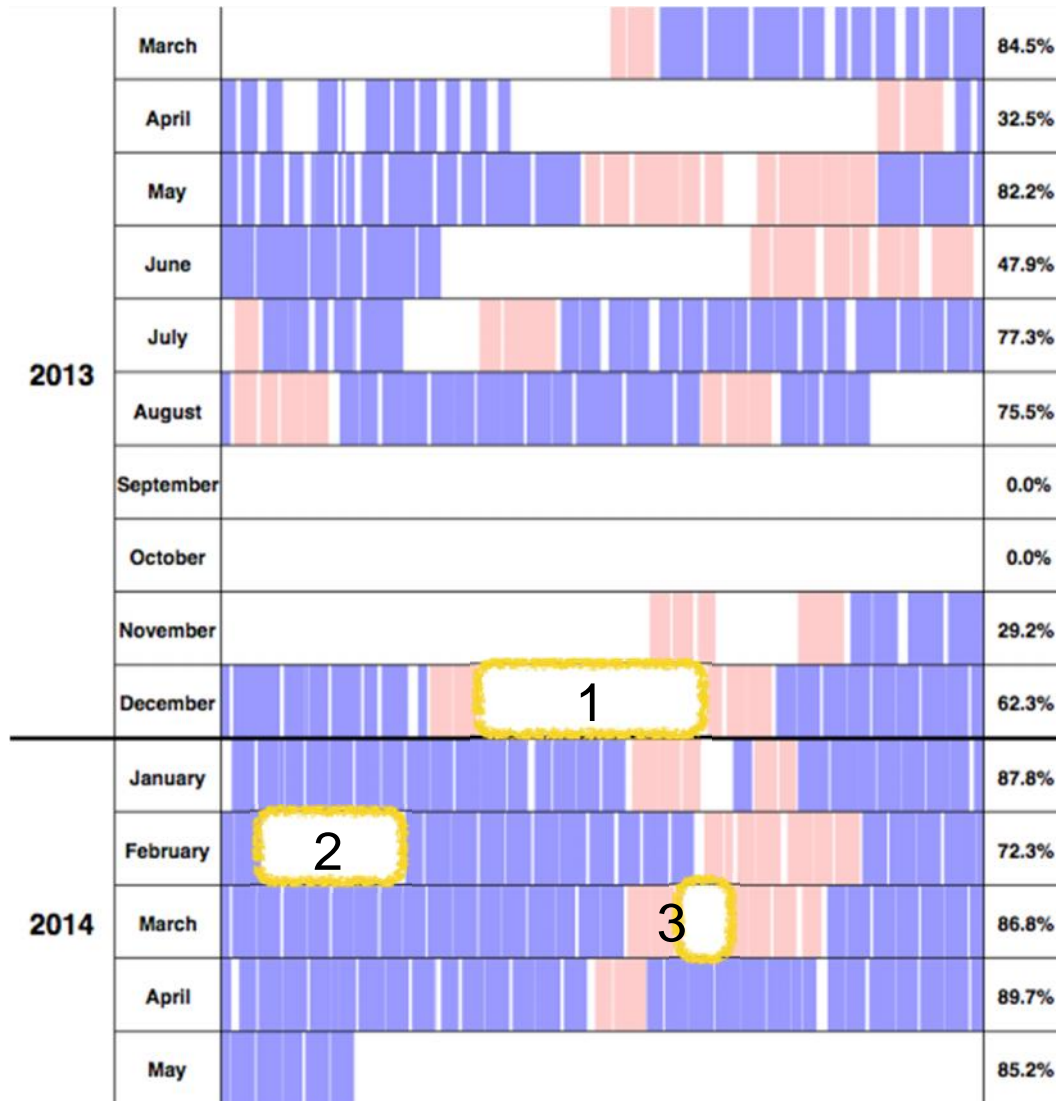


*background
calibrations*





Livetime improvement



background calibrations

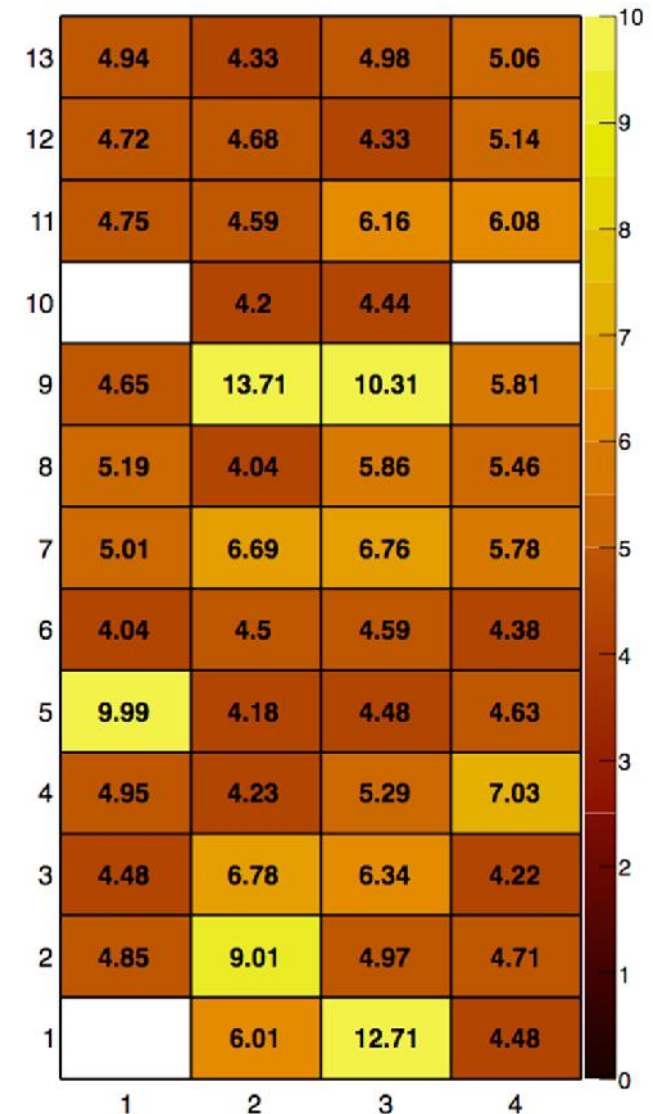
1. Traps cleaning and noise optimization
2. Accidental warm-up (1K-pot empty)
3. Traps cleaning



FWHM @ 2615 keV in ds 2085



- FWHM @ 2615 keV < 5 keV for **27** over 49 detectors during calibration runs



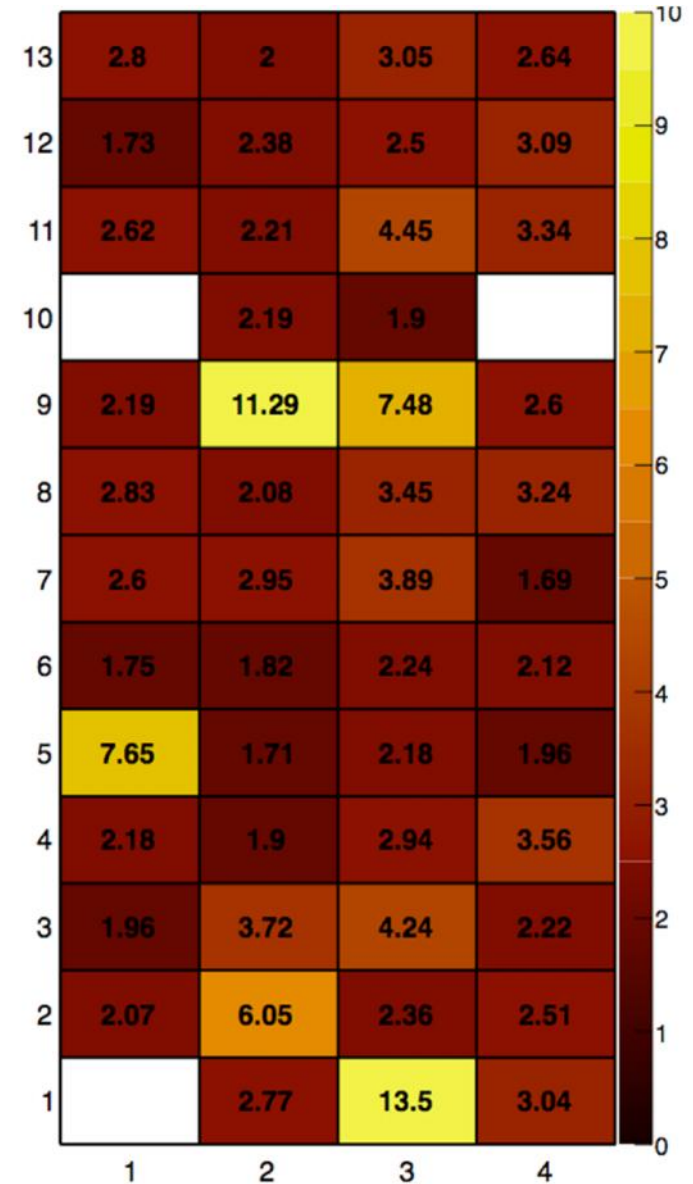


FWHM @ 0 keV in ds 2085



- FWHM @ 0 keV < 3 keV for **33** over 49 detectors

Low energy studies
are now feasible

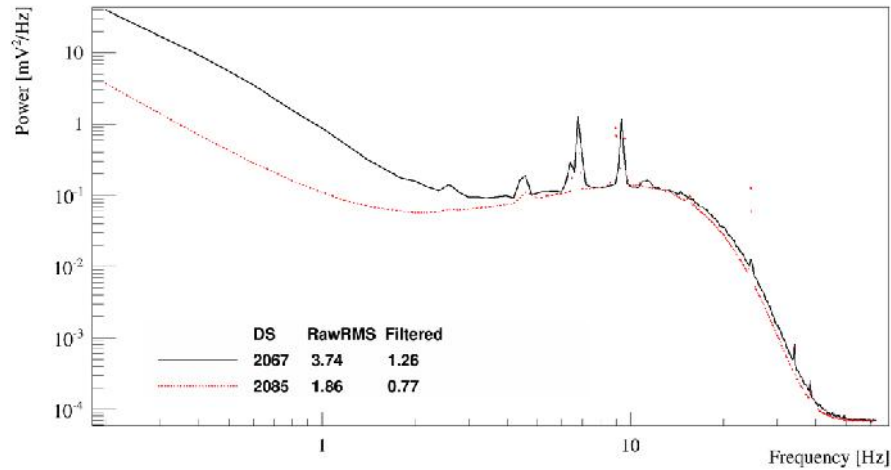




Noise improvements

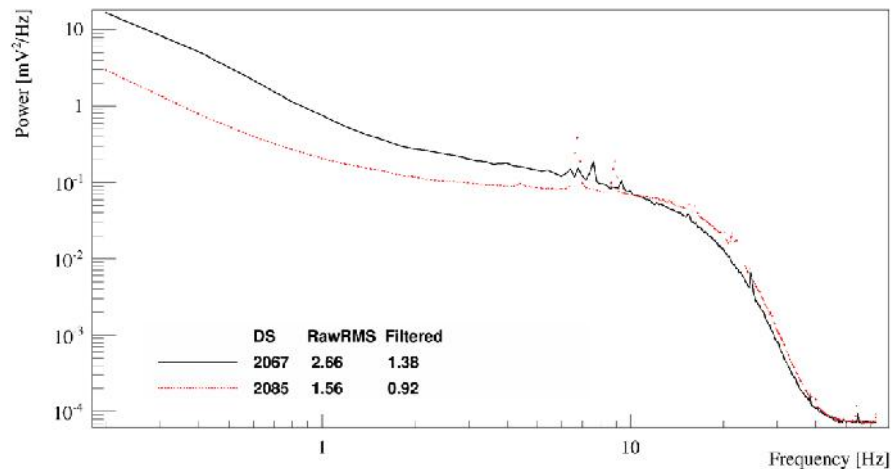


Average noise power spectrum of channel 0012



Before maintenance
After maintenance

Average noise power spectrum of channel 0035



Improvement in the NPS
acting on the 1K-pot level

Richiesta AdR (Pd-LNL) nel 2015



Richieste attività Tecnica: Bonding M. Tessaro + R. Pedrotta



da definire

BONDING																		
2013												2014						
JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL
wk1			festa					train										
wk2							festa											
wk3						3	1							3	festa			
wk4			prep						mtg		festa					4		
wk5			2								3							

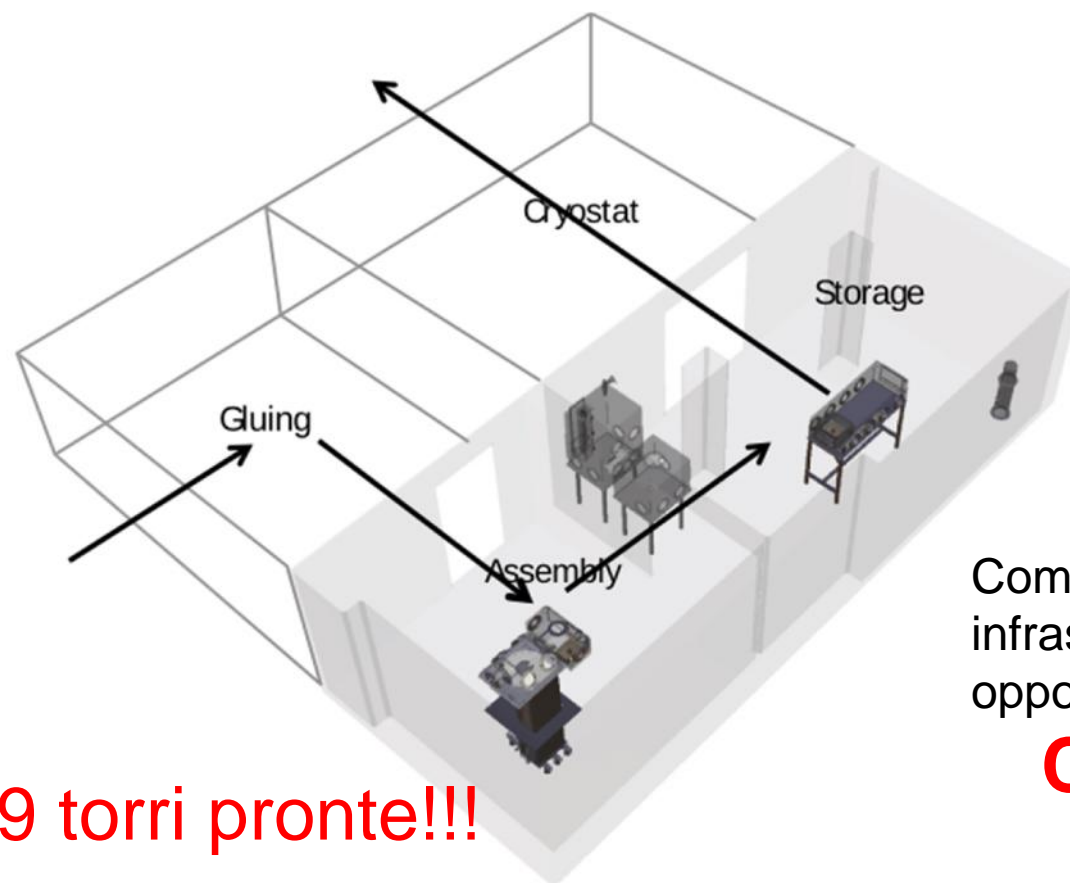
DetectorAssembly/Schedule (last edited 2013-06-18 16:27:24 by TomBanks)

2014

FATTO! Con i complimenti per la Sezione da parte della collaborazione

CUORE-0: assembly procedure

CUORE-0 assembly was performed in the new CUORE clean room following all the stages and using **all the equipment developed for CUORE**



Competenze
infrastrutture
opportunità per il futuro:

Cuore-next!

Tutte le 19 torri pronte!!!



Richieste ai servizi:

2 mesi/uomo officina meccanica: realizzazione pezzi di interfaccia criostato e termalizzazioni 2-4 weeks in loco LNGS

capitolo	descrizione	parziali	richieste
Missioni	2 Riunioni PI	0.5	24
	Turno Cuore0 (9gg)	1.5	
	10 weeks@GS cryostat	12	
	1 mese turno AD	5	
	1 meeting AD	1.5	
	1 meeting intern.	2.5	
	1 meeting ita	1	
Inventariabile	Pannello DU	10	15
	Bolle elettrolitica	5	
Consumo	Gimbal e acoustic dec.	3	3
totale			42 k€