

Enriched detector reprocessing: Status and plans

S. Schoenert
on behalf TG1

GERDA general meeting,
Universita' degli studi Milano Bicocca
Nov. 14, 2006,

The team



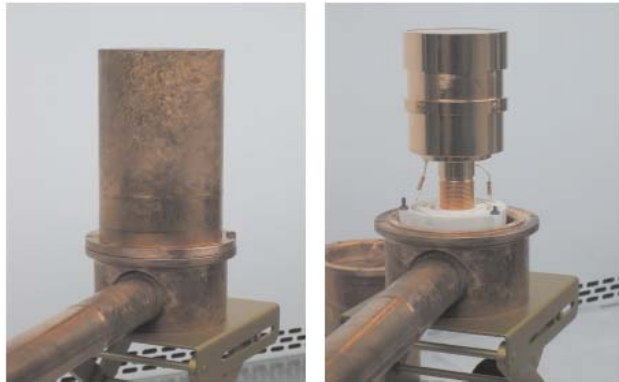
After dismounting RG1/2

Status of diodes

- Dismounted and reprocessed:
 - ANG1
 - RG3
- Dismounted:
 - RG1/2
 - GTF1/2/3/4/5/6 (natural)
- Scheduled for dismounting:
 - ANG2/3/4/5 November 20-22

Separate GSTR for each crystal dismounting, processing and testing

ANG1



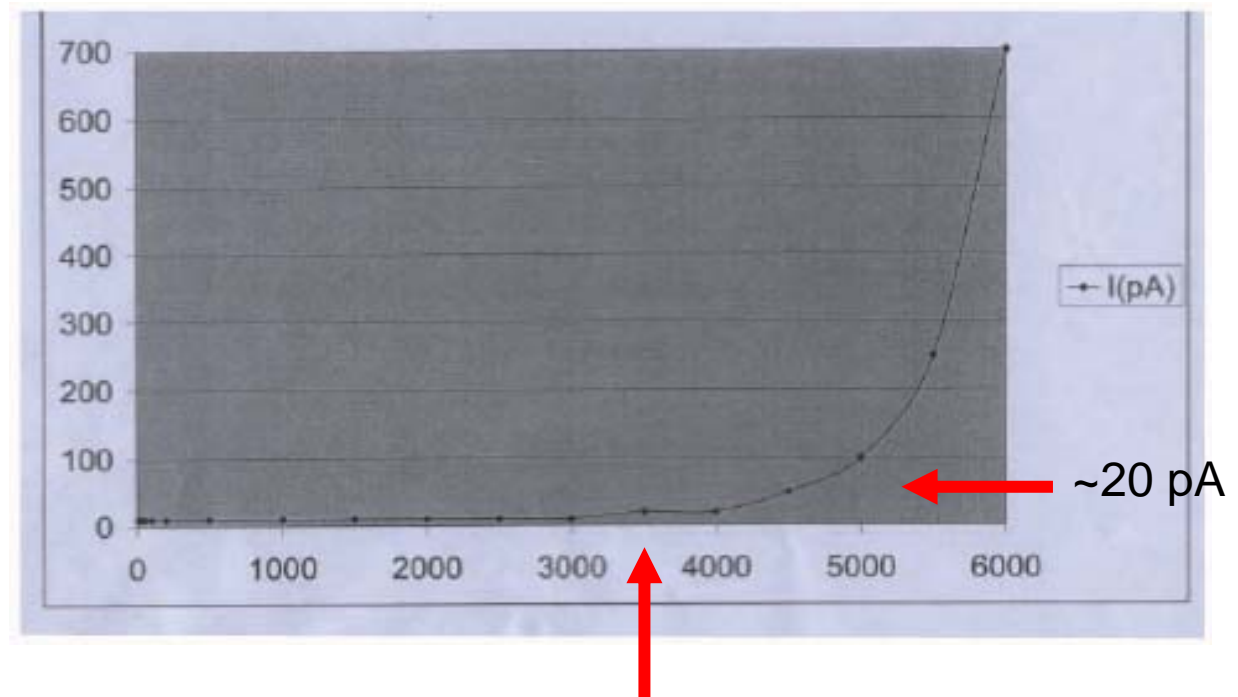
August 21, 2006	Transport from LNGS to Hades
August 23-24, 2006	Refurbishment at Canberra, Olen
August 26, 2006	Back underground at LNGS

Total exposure during reprocessing and transportation → 99 hours or 4.125 days
Cosmogenic production of Co-60 and Ge-68 negligible!

I/V curve measured in LN at Canberra after refurbishment

Work carried out:

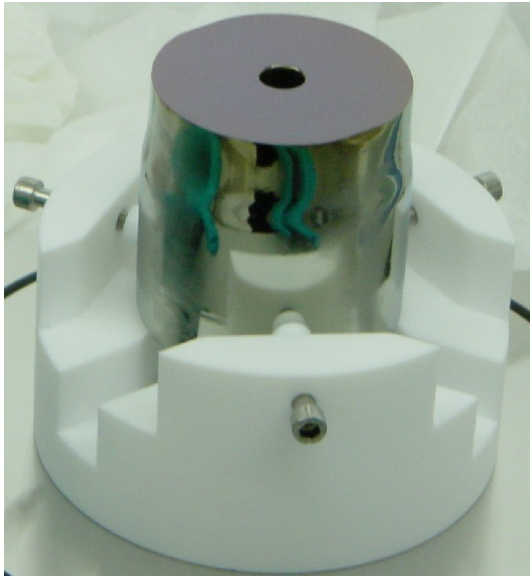
- Machining of well
- New inner contact
- Etching and polishing
- New passivation layer



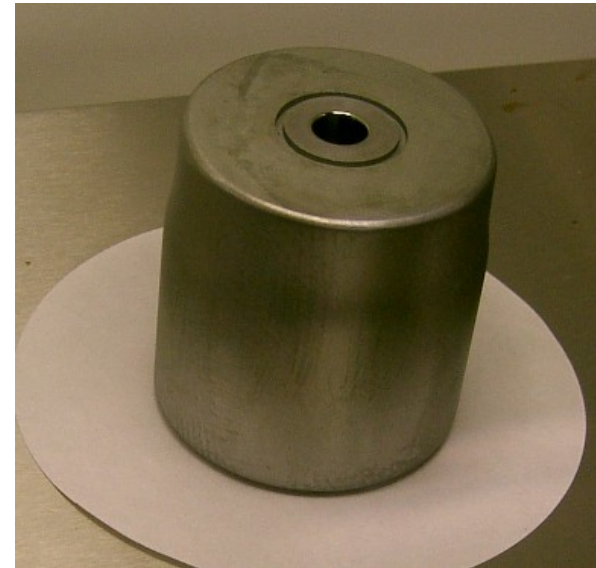
Depletion at 3500 V,

RG3

After dismounting



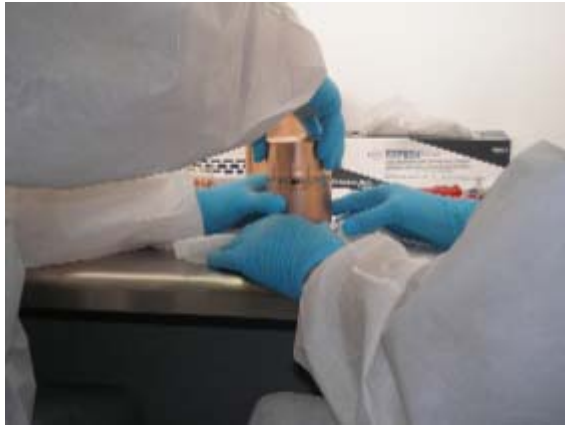
During refurbishment



August 21, 2006	Transport from LNGS to Hades
September 11-12, 2006	Refurbishment at Canberra, Olen
September 12, 2006	Underground storage at Hades

**Total exposure during reprocessing and transportation → 44 hours + transport
Cosmogenic production of Co-60 and Ge-68 negligible!**

RG1



RG2



Dismounted, Oct. 26 , Ready for transportation to HADES

Natural crystals from Genius-TF

- 6 non-enriched low-background crystals available
 - Dismounted from GTF October 9-13
 - 4 crystals stored underground at LNGS
 - 2 crystals at MPIK underground laboratory
- Available for reprocessing soon

NB: Crystals have diameter larger than enriched Phase I detectors !

Remarks (1)

Detector refurbishment and logistics tested now with several crystals

⇒ Reliable and technique

⇒ Negligible exposure to cosmic rays possible with logistic support by Geel (overnight storage at Hades)

US department of homeland security order will keep Canberra busy!

⇒ Processing of detectors is time critical

⇒ Trying to complete work before the end of the year

Remarks (2)

- Intensive discussion with Russian colleagues during last months triggered by '2008 schedule'
 - Agreement to dismount enriched crystals
 - After reprocessing measurement of I/V curve in LAr only
 - Storage of enriched detectors at -30 C
 - All test measurements and optimizations with **non-enriched** crystals (eg. GTF)
 - Enriched detectors for DBD data taking only
 - Operation in LArGe after commissioning with non-enriched detectors **if** background shown to be below <0.01 cts/keV/kg/year \Rightarrow start of physics data taking