Forward Endcap News

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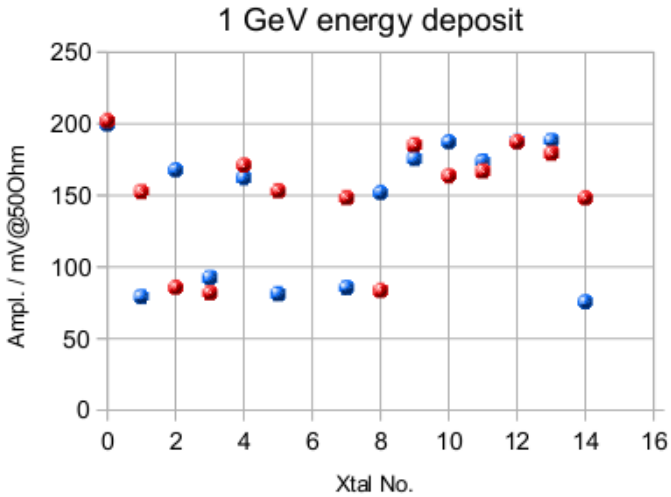
Miscellaneous Topics

- Broken APD couplings (Proto192)
- HV modules: Iseg-Meeting
- Cable routing in forward endcap
- VPTTs
- Support and mounting frame (Jülich)

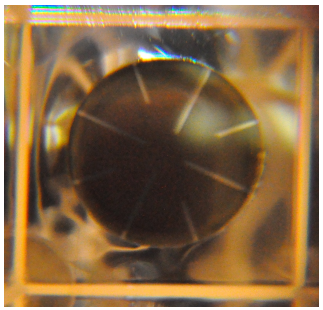
Proto192: Broken APD Couplings

- Reported at Jülich meeting: APD-pairs on the same crystal show different light yields
- Further investigation: Dismantling of APD-subunit
- Result: Broken couplings to some of the crystals
- Three units fallen off completely



Proto192: Broken APD Couplings

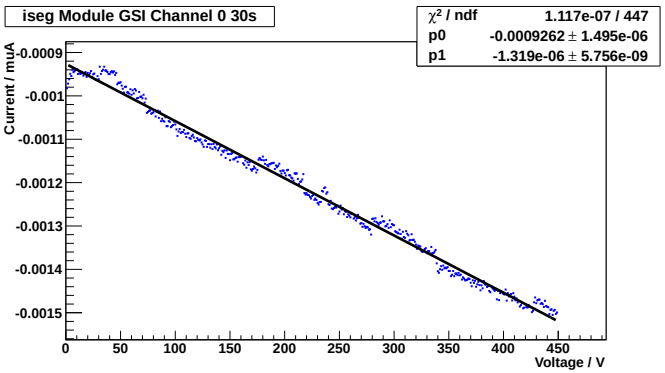
- VPTT subunit totally unaffected: rock-solid couplings
- Most likely scenario: insufficient curing time
  (stress on coupling (mounting) during curing)
- Curing by reaction with air moisture -
  penetration through complete coupling necessary
- VPTTs glued one month, APDs glued three days
  before beam time...
- However, bad couplings not correlated with differing light yields

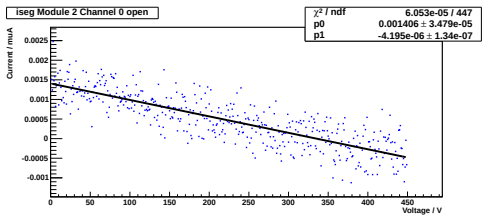


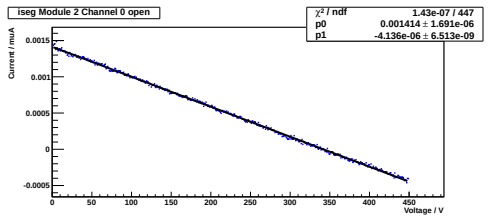
- APD yield measurements
  to better understand/explain
  the differences in crystal readout

HV modules: Iseg-Meeting

- Problems with ISEG HV modules (APD lab and Bochum)
- Negative currents/zero load currents,
  waiting time per voltage step
- There is a minimum latency to account for in order to get precise current values for a choosen voltage setting
  (depends on module firmware - up tp 40 s)
- Allow for non-zero open loop currents: record and subtract
  (intrinsic current does not change with load)
- All these effects are covered by the stated accuracy
  given in the manual







Forward Endcap Cabling, Mechanics (Bonn)

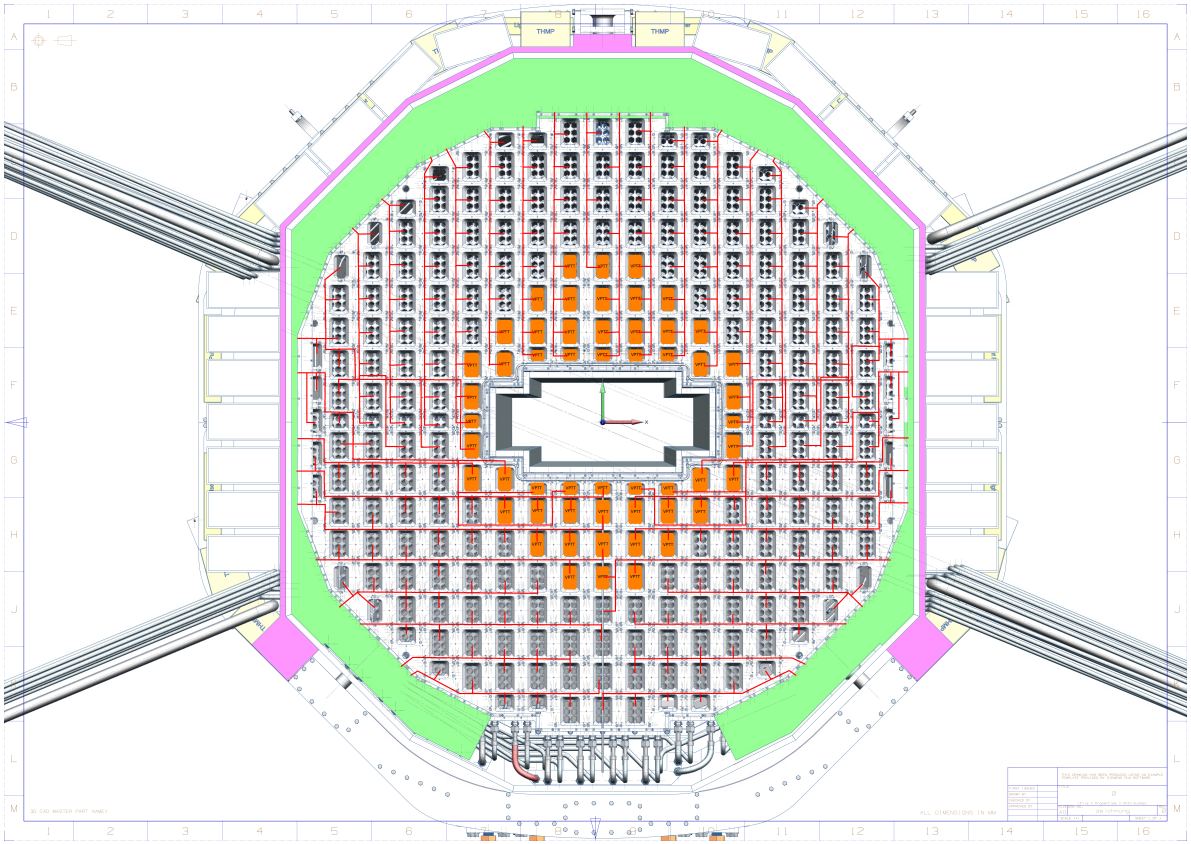
- Cabling photo detector units:
  - All signal cable: delivered
  - HV and LV cable: order soon (talk to vendor/tailor), delivery 1-2 weeks after order
  - GND cable: distributor located, offers requested, delivery 1-2 weeks after order
  - Subunit patch-panel: received offers for connectors (ordering soon), U.FL connectors arrived last week
  - Design patch-panel pcb not yet finalized: introduction of power planes for LV feeding, extension to 8 layers

Forward Endcap Cabling, Mechanics (Bonn)

- Connection patch-panel to outside:
  - Signal cable ordered
  - Signal cable connection: modify pitch adapter pcb (changes because of swichover to thinner cable), talk to assembler
  - LV: cable type still to determine
  - HV cable: delivered (talk to tailor - mounting of Molex connectors)
  - Molex connector: offers received, ordering soon
- Mechanics:
  - Mountplates: ready
  - Inserts: ready (except for some spares)
  - Interface pieces: got drawings, clarify with workshop

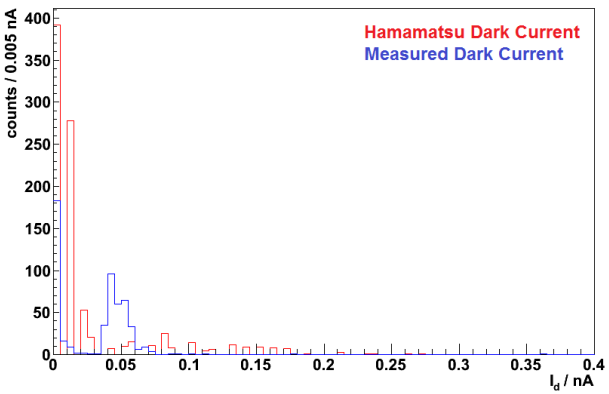
Cable routing in forward endcap

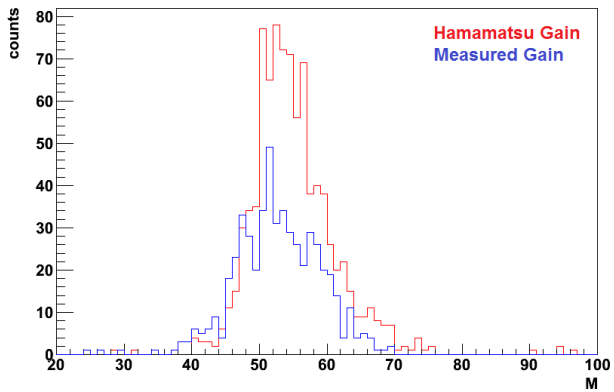
- Routing scheme finished
- Test bundle between subunits X5Y8 and X6Y8 (the biggest one: 32 HV lines, 256 singnal lines, 9 ribbon cables) fits in available space



VPTTs

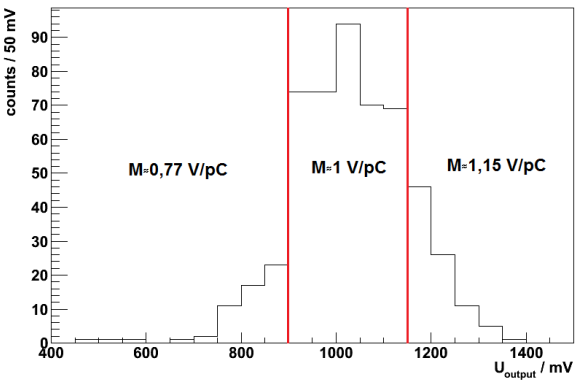
- All 900 VPTTs for PANDA delivered now!
- Gain measurements done so far: 564 pieces (750/1000 V)
- Cathode and anode dark currents (0.1 nA)
- One VPTT returned to Hamamatsu (weak connection wire)
- Medium gain: 54.8 (Hamamatsu), 52.7 (750V), 64.8 (1000V)
- All deviations (Hamamatsu vs. BO) in gain (750 V) $\leq$ 10% (as always)





VPTTs

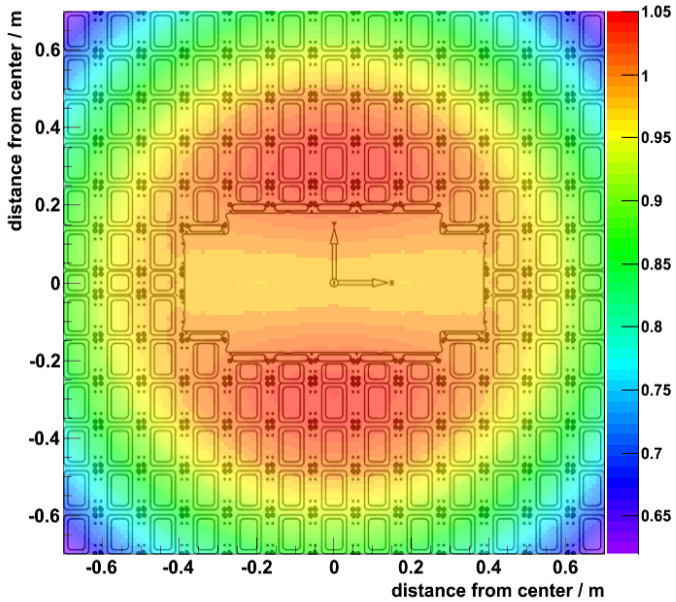
- Forseen: Three different preamp types (gain)
- Medium gain version will need twice the gain the preamps have now (0.5 V/pC $\rightarrow$ 1 V/pC)
- Basel is currently manufacturing a version for testing
- Basel also modified the voltage divider PCB to 1500 V capability (works perfect)



- As soon as the new preamps are delivered, all VPTT subunits can be finished

VPTTs

- Preamp gain estimations based on tube gain and magnetic field map
- New simulation by Yuri Lobanov: 0.95-1.04 T at tube location
- Still to do: tube-position assignment (with B-field measurement data from Bonn)



Support and mounting frame (Jülich)

- Design of a support and mounting frame
  (Zentralinstitut für Engineering, Elektronik und Analyse, FZJ)
- Secure mounting/removing (maintenance)
  of forward endcap and disc DIRC into/out of Panda magnet
- Construction of a base to place the endcap
  in COSY beam height for the preassemly in Jülich
- Support frame also needed for secure transport
  of the detector to Darmstadt