

# **Status Forward Endcap EMC**

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# **APD Submodule Manufacturing**

- Submodule manufacturing and shipping proceeding (shipping 5 modules/2 weeks to Bonn, manufacturing frequency a little higher)
- 65 (of 193) APD submodules built so far (glued)
- 46 submodules shipped to Bonn for cosmics tests
- Transport to Jülich not yet started (restricted acces from end of last year on), foreseen to start March 26.
- Several new students now involved in submodule manufacturing

1



## **APD Screening**

- APD screening ongoing regularly
  - Currently still in weekend mode (one shift a day)

- Current numbers:
  - Screened irradiated screened: 19500 66 % of whole target calorimeter
  - Matched (on demand): 4000
     (80+ FWEC APD submodules plus complete BWEC)





# Cooling: Pressure Drop Measurements (Lower) U-Turns



- U-turns: In- and outlet (manometers) at same height (dynamical pressure drop only)
- Simulation: 5 mbar pressure drop at 4 l/min (ΔT =1 K)
- Lowest reliably measureable flow: 10 l/min
- Extrapolation (plot): about 4 mbar pressure drop at 4 l/min



# Cooling: Pressure Drop Measurements Backplane Side



- U-turns: manometers at different heights ( $\Delta$  h = 1.3 m)
- Simulation: 25 mbar dynamical pressure drop at 18 l/min (Δ T = 1 K)
- Plot: -116(± 5) + 130 mbar = 14 (± 5) mbar pressure drop at 18 l/min



## **SADC Crates**

- Thermal coupling of heat dissipating components by silicon foam heat transfer pads to aluminum plates on top and bottom
- Thermal images taken with blackened aluminum plates (in order to prevent reflection)
- No hot-spots on aluminum plates
- Internal temperature readout of FPGA: 45(55) °C, safe!





# **SADC Crates**

- Cooling flanges covering SADC boards and power supplies
- Complete thermal test of crates (6- and 15-SADC crates)
- Tests with simple cooling line routing (also sufficient for full load?)







#### **Light Pulser Paper**

## NIM A paper about PANDA light pulser system published





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### Summary

- Construction of Forward Endcap proceeds (medium speed)
- Production of submodules:
  - 65 APD submodules so far (about a third of the total number of APD modules)
  - Bochum U regulations yet unchanged: Students allowed to work (picking of APD sets, building submodules)
  - Transport of submodules to Jülich starting end of March
- Work progress may increase as Covid-19 regulations change, though



