

# TRD GAS & DAQ

AMS TIM @ KSC 23-Oct-2007

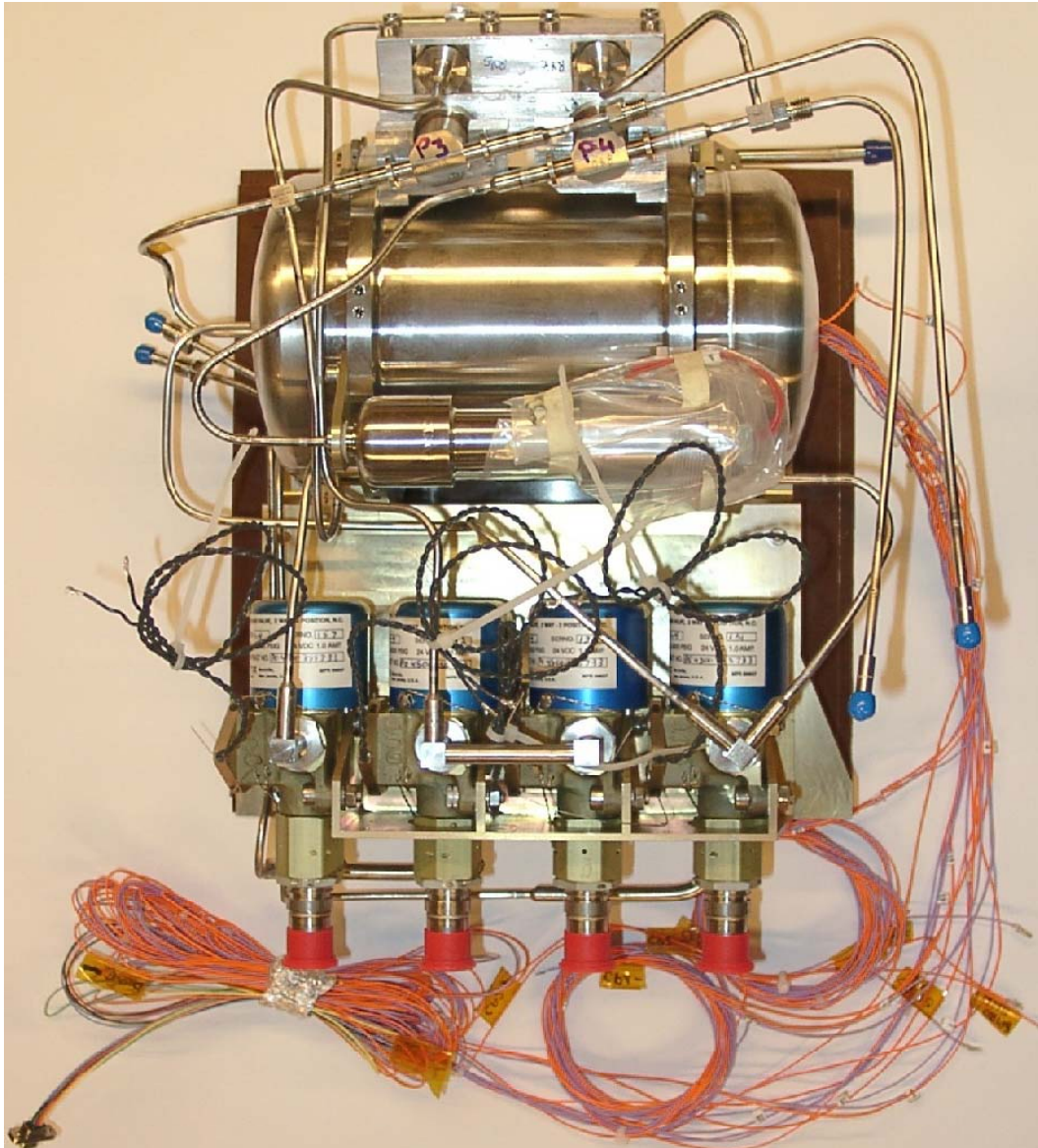
Th. Siedenburg MIT-LNS

# Status TRD-GAS Box-S



- Welding at Arde and Cabeling at MIT finished
- Arrival at CERN on Aug.15<sup>th</sup>
- Bolt torques checked  
Bolt replacement list prep.
- Arrival at RWTH on Oct.9<sup>th</sup>
- Function checks with QM1 UG  
Marotta Valves & Heaters  
Pressure Sensors  
Local DALLAS Temp.Sensors  
FillPort filling and venting

# Status TRD-GAS Box-S



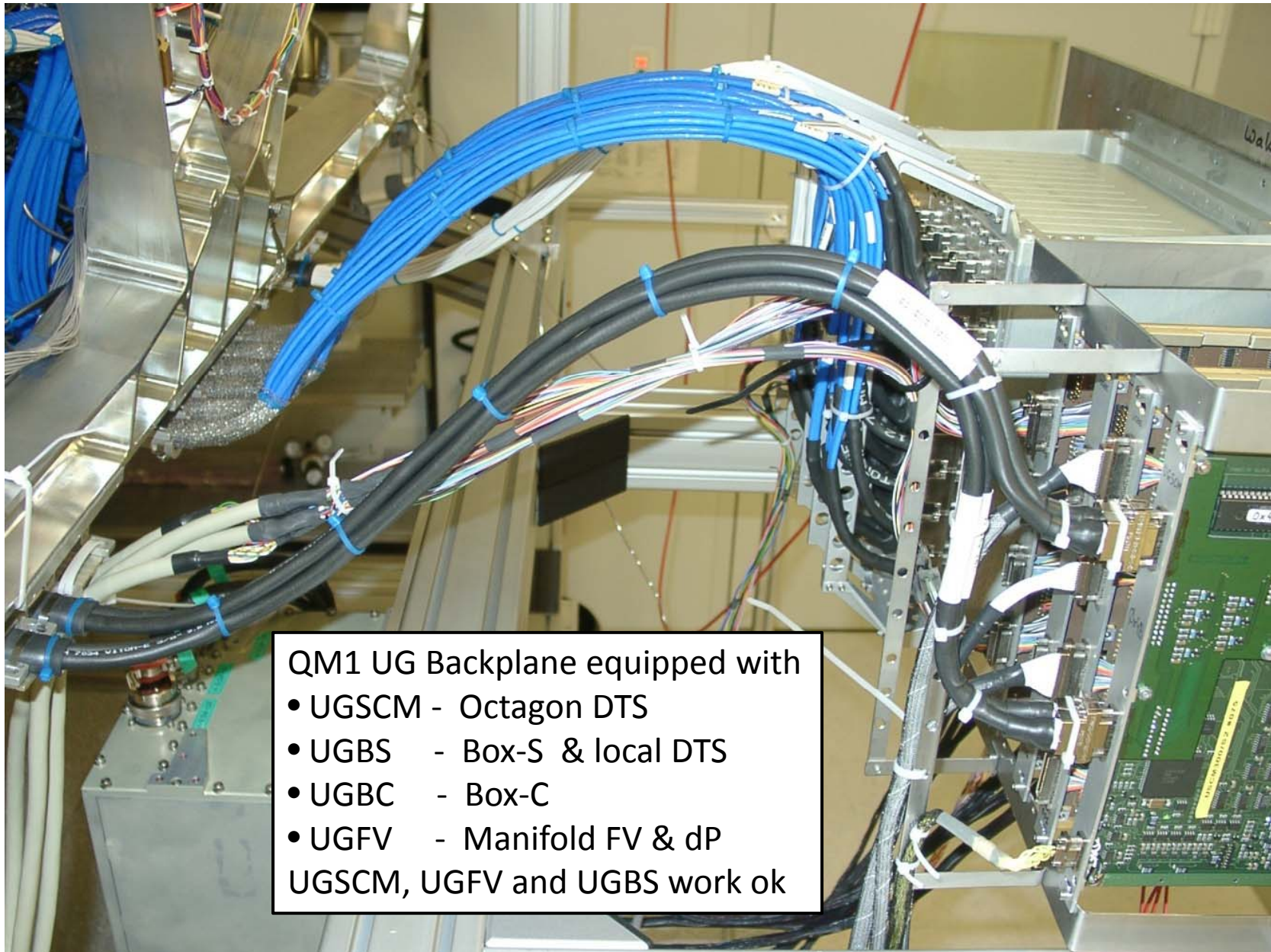
## Finished:

- Canister assembly finished  
DTS on Spirometer exchanged  
after failed function test  
Flow restrictors integrated  
Orbital Welding done
- Weld inspection and proof press.test  
done for Canister and MonitorTubes
- Box-C tubing welded
- Arrival at RWTH on Oct.17<sup>th</sup>

## Still to do:

- Cabeling in progress at Aachen
- TubeAmp/MCA board production
- Heaters on Marotta Valve bracket
- Connection of heaters & DTS to Box-S
- HV Cabeling for MonitorTubes  
Component order by Sa  
also for Manifold cables ?

# QM1 UG-Crate Electronics



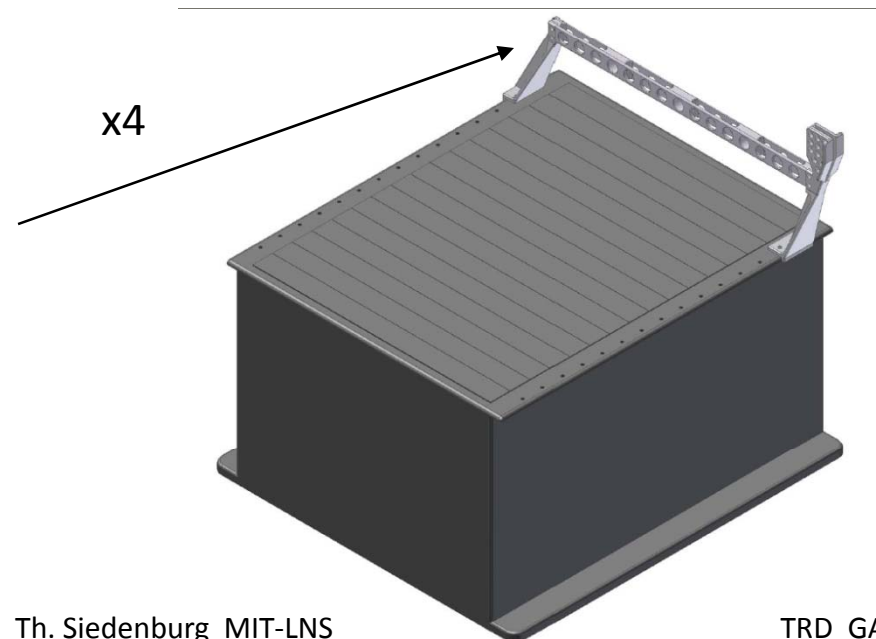
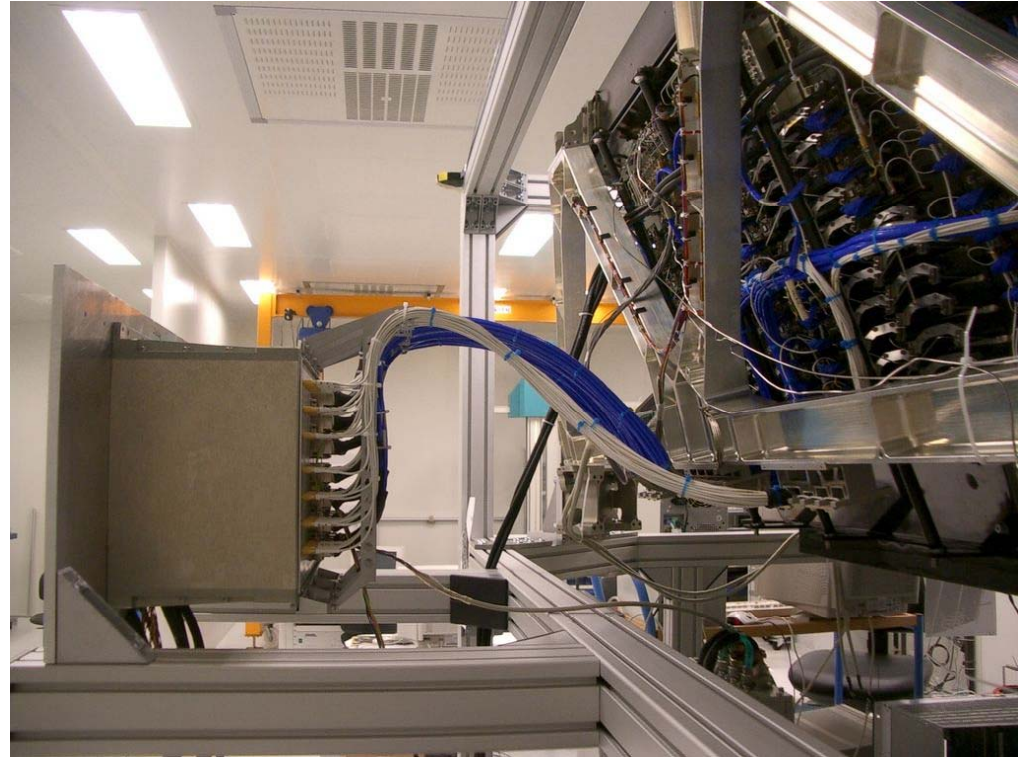
QM1 UG Backplane equipped with

- UGSCM - Octagon DTS
- UGBS - Box-S & local DTS
- UGBC - Box-C
- UGFV - Manifold FV & dP

UGSCM, UGFV and UGBS work ok

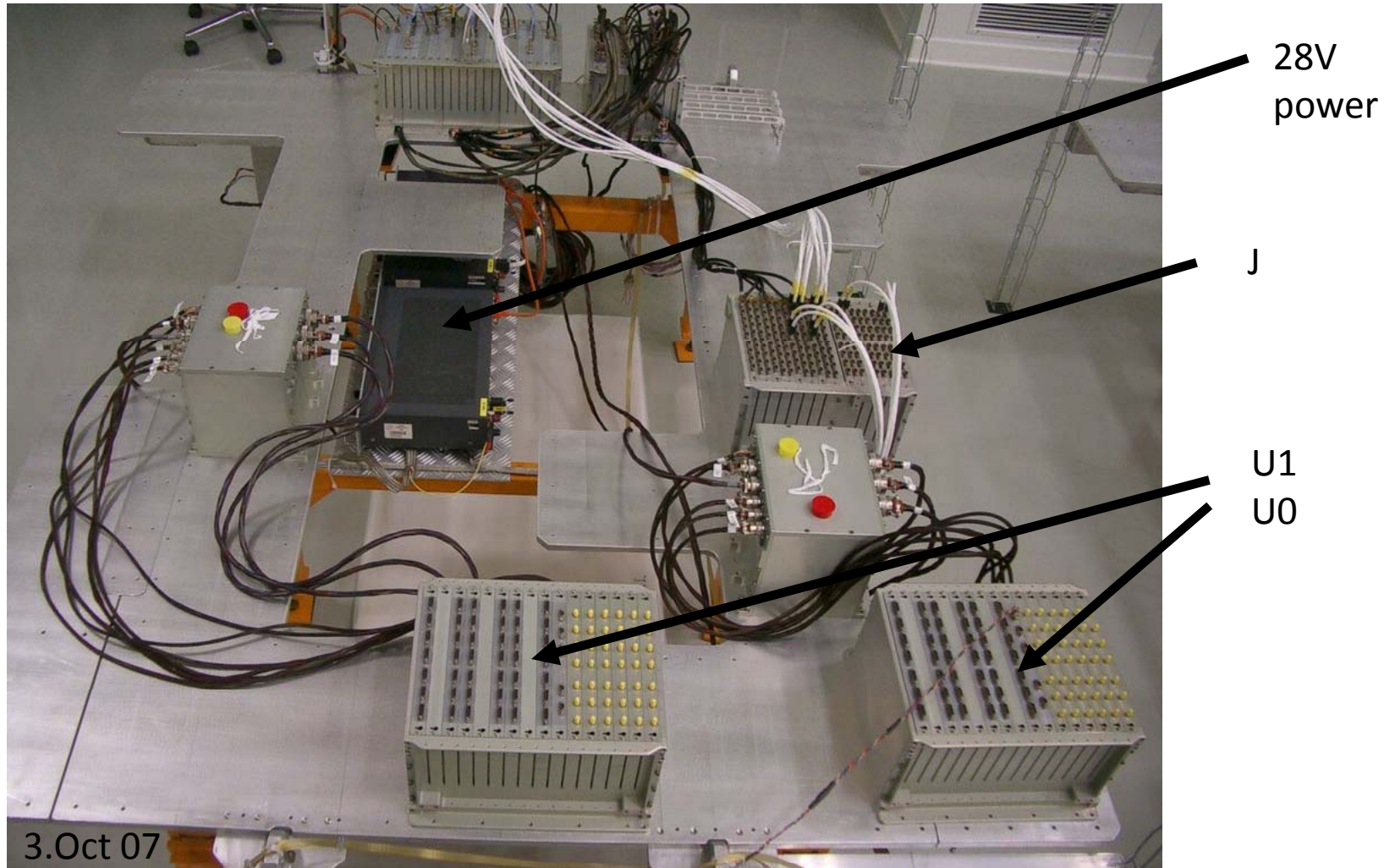
# U-Crate Cable Support Bridge

- Rework of design to reduce weight
- Production in KA workshop ongoing
- delivery mid november (also for UG-Crate)



# FM U-Crate Status

Delivered to CERN cleanroom Jul07 after ESS and TVT



DAQ chain under test at CERN cleanroom with FM U-Crates on RAM radiator  
FS U-Crate TVT with QM UPD test at Aachen successful (1 UHVG channel x-tal problem)

# TRD DAQ Status

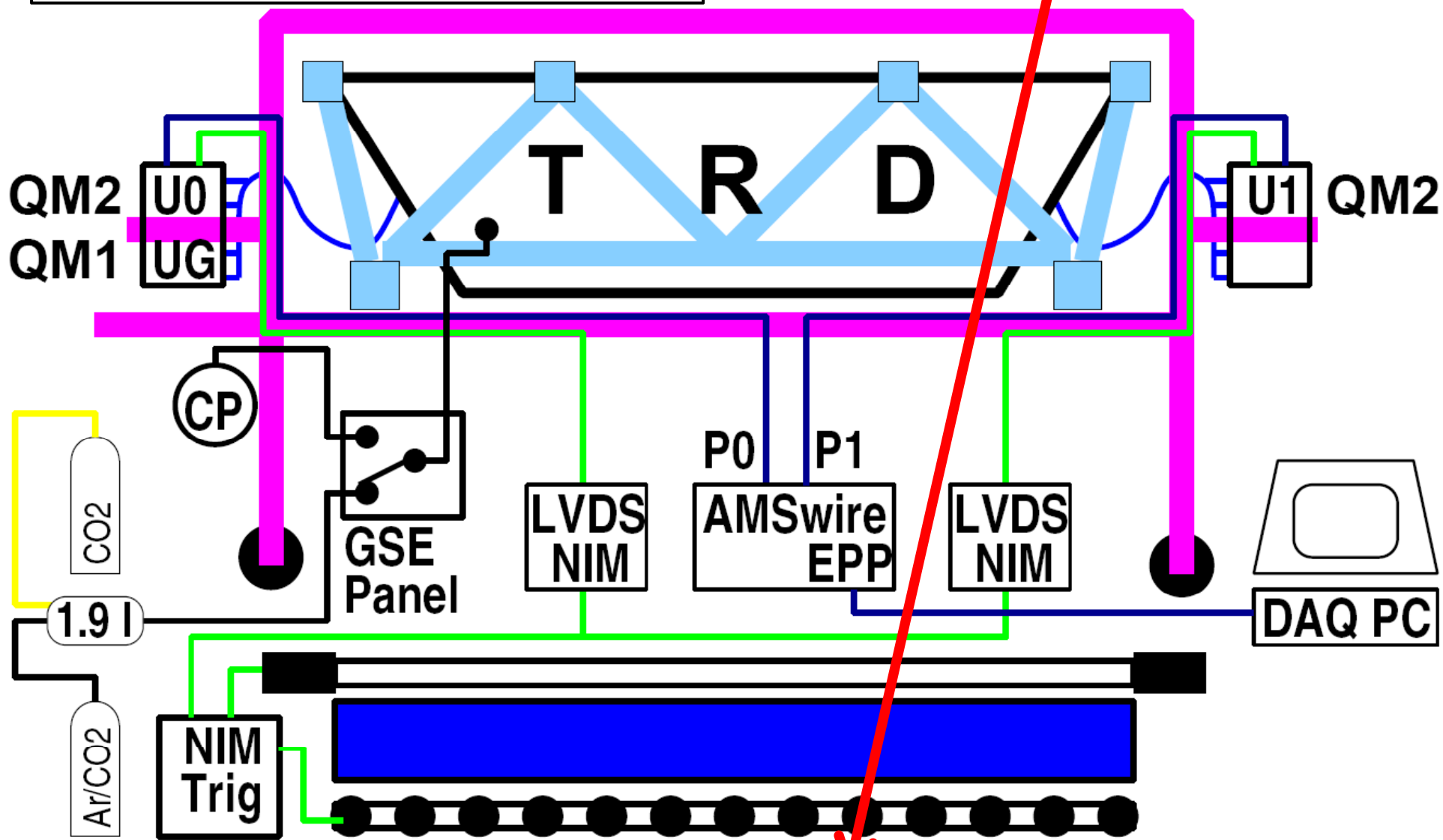
Visit of A.Sabellek and A.Aghdiri from Karlsruhe

Frontpage Aachener Nachrichten  
Oct.19<sup>th</sup> 2007



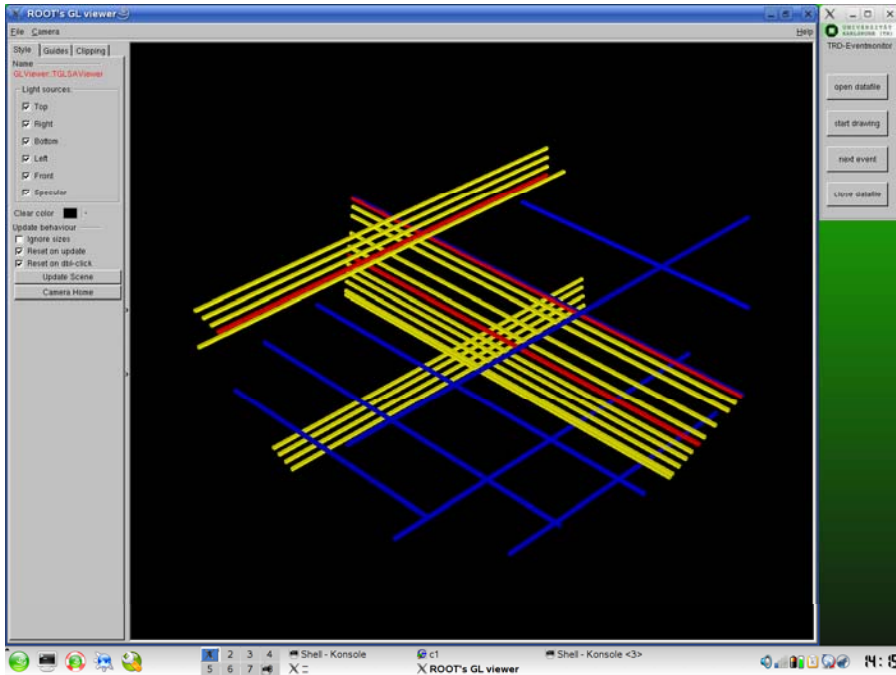
# TRD DAQ Setup at RWTH

2 QM2 U-Crates + 1 QM UPD + 1 Aachen PS  
for full TRD Readout with Cosmic Trigger



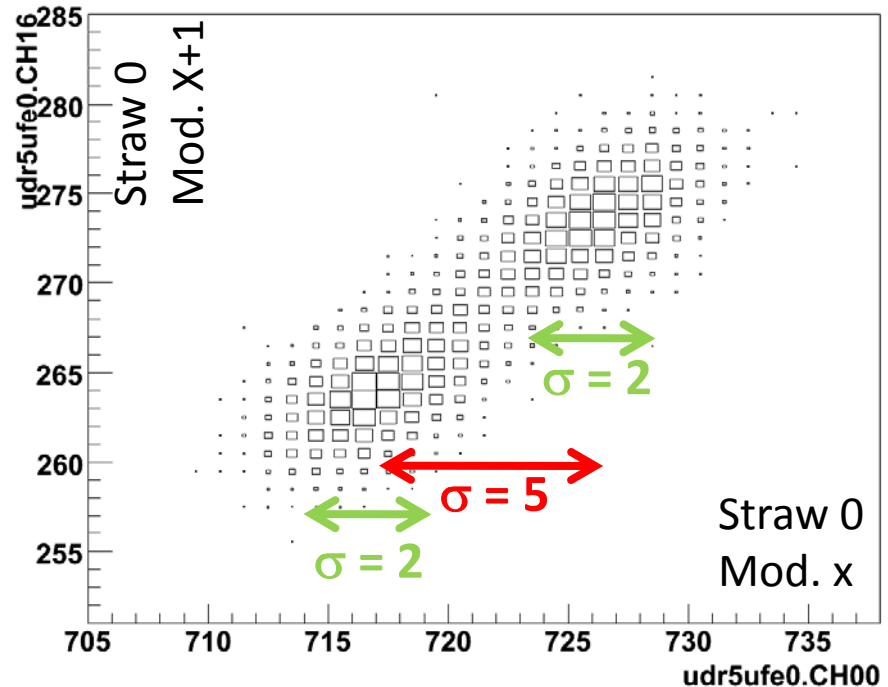
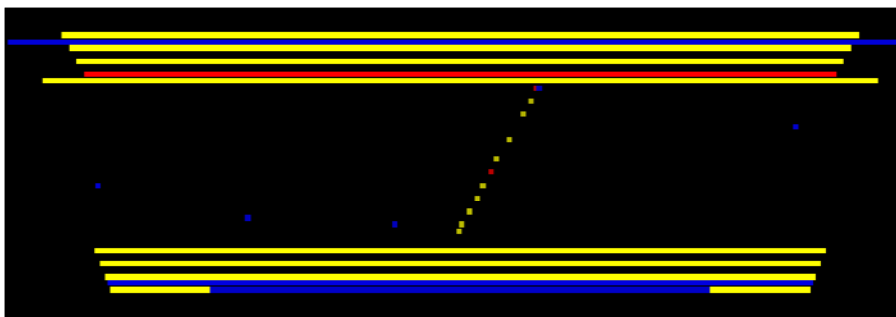
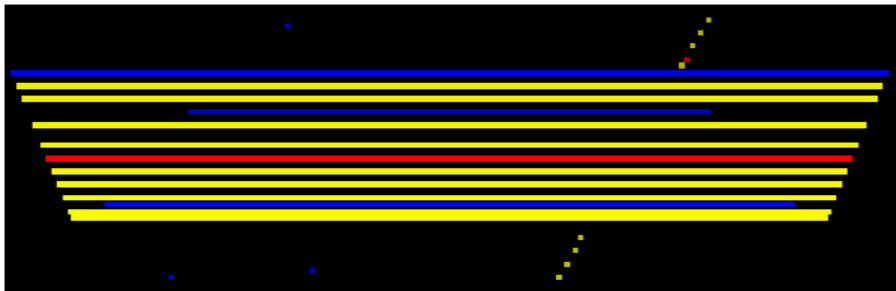
# TRD DAQ Tests I

- HV ramping, Raw/Compr./Mixed recording
- EventDisplay to check UFE-UDR cabeling
- Noise < 2 ADCch for most straw tubes  
On module edge up to 5 ADCch from correlated HV noise pickup on UTE (MIP at 60 ADCch at gas gain 3000)

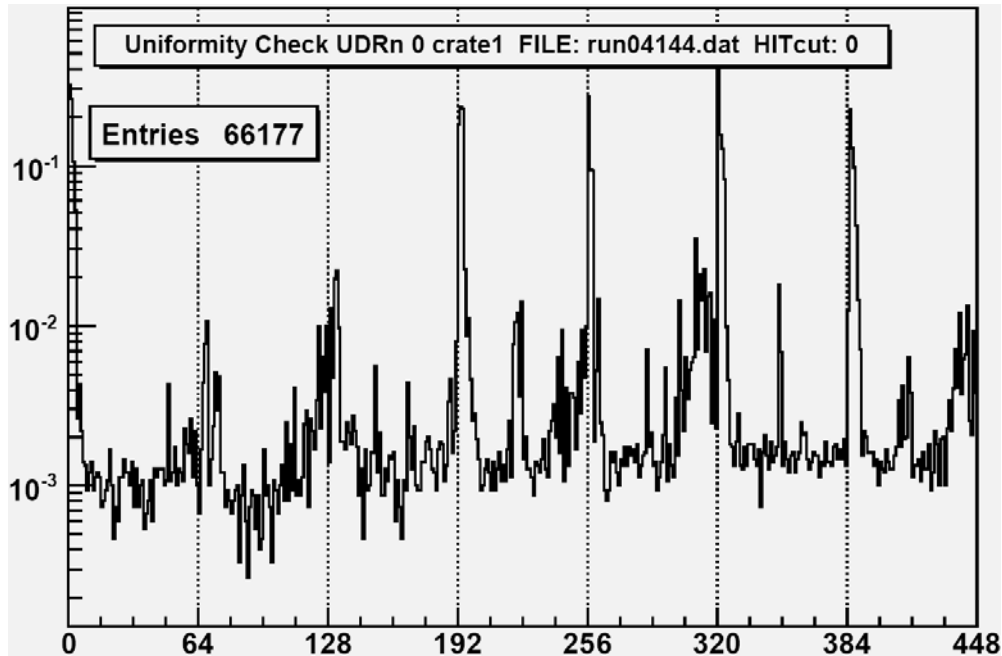


udr5ufe0.CH16:udr5ufe0.CH00

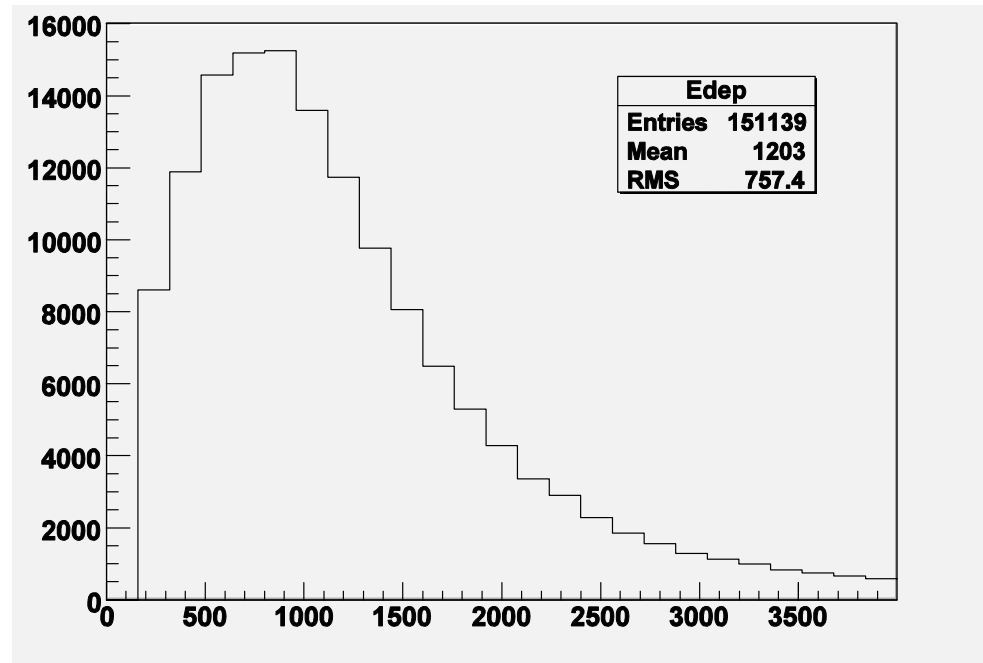
Pedestal Run 4143



# TRD DAQ Tests II



- DSP Pedestal Calibration not yet stable  
Pedestal shift w.r.t. data seen for first handful of channels  
Suspect frontend power supply needs time to settle during sequencing.  
Will adjust calib.rate to data rate

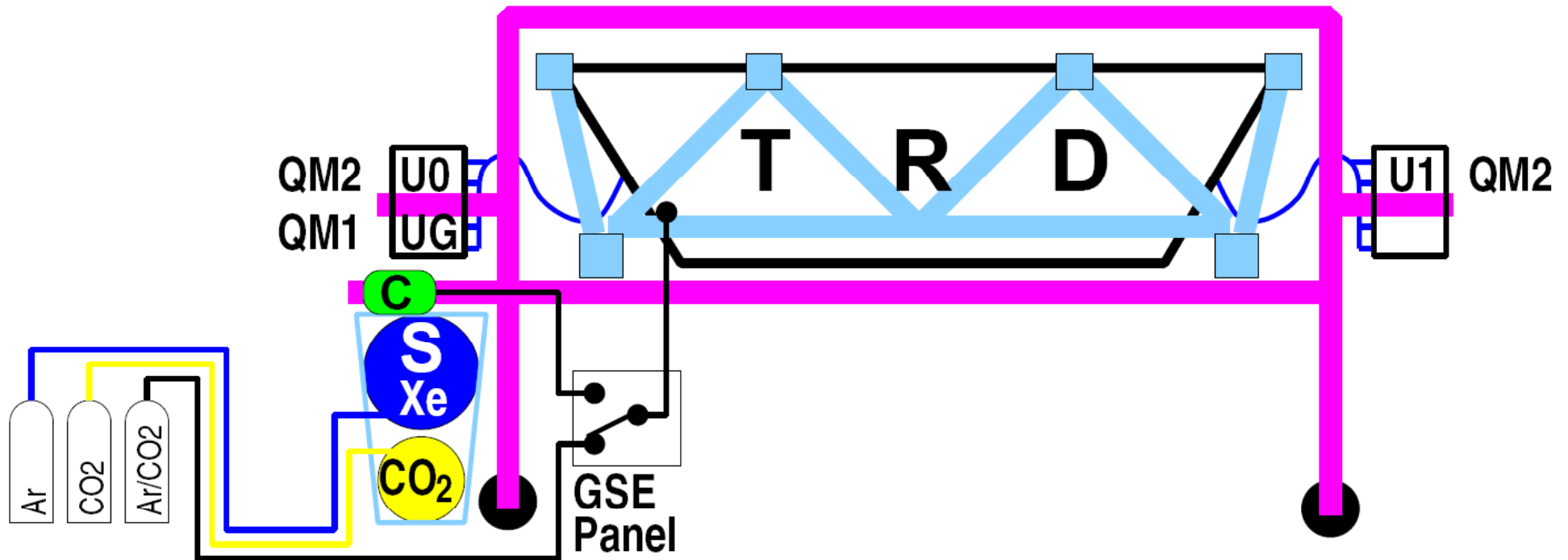


- TRD gain calibration with cosmic myons to simulate proton calibration on ISS with circulating Ar/CO<sub>2</sub> and CO<sub>2</sub> bubble
- Recorded  $80 \times 10^6$  compressed events
- Analysis still in progress  
Observed problems in event synchronization of U0 and U1  
Attributed to sequential PC readout  
Will recheck at CERN with JINJ

# TRD+GAS PreIntegration Schedule

TRD+GAS at CERN	25.OCT.2007
TRD-GAS+DAQ Acceptance Tests	- 2.NOV.2007
TRD-UTOF Integration	6.- 8.NOV.2007
TRD/UTOF triggered cosmics ?	9.-18.NOV.2007
BOX-S COPV Offline MLI TestFit	21.NOV.2007
TRD/UTOF install. on USS	22.-24.NOV.2007
TRD-GAS install. on USS	25.-26.NOV.2007
TRD-GAS Online MLI TestFit	28.-30.NOV.2007
TRD-GAS removal from USS	30.NOV.2007
TRD-GAS Offline Operations:	1.DEC.2007
Supply of TRD on USS	
Function test of QM2 UG-Crate	

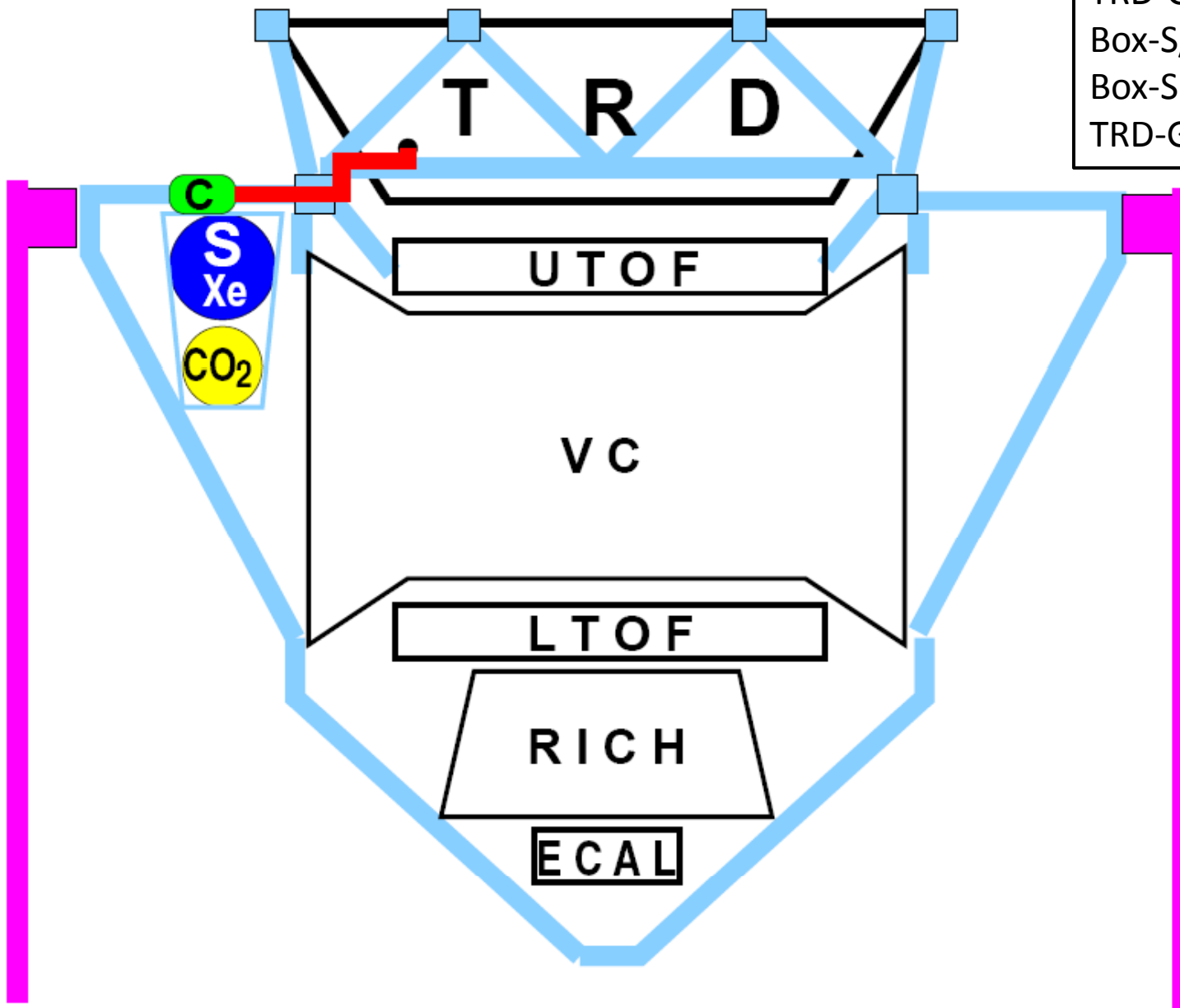
# TRD-GAS+DAQ Acceptance Tests



TRD Octagon Leaktest  
TRD-GAS Leak & Function Test  
TRD-DAQ Function Test  
Monitoring of TRD Pressure and Temp.



# TRD-GAS TestFit on USS



Box-S on Upper-Joint/USS  
Box-C on Upper-Joint  
TRD-GAS --> TRD tubing  
Box-S/C --> UG-Crate cables  
Box-S Supply-Vessel MLIs  
TRD-GAS large MLI

# Offline TRD-GAS Operation

- TRD-GAS Offline Operation to
- Supply TRD for AMS Data Recording with full TRD readout (U0 on Wake)
  - Improve TRD GasGain Calibration
  - Function Tests for QM2 UG-Crate
  - Green Light for FM UG production required in Dec.2007

