

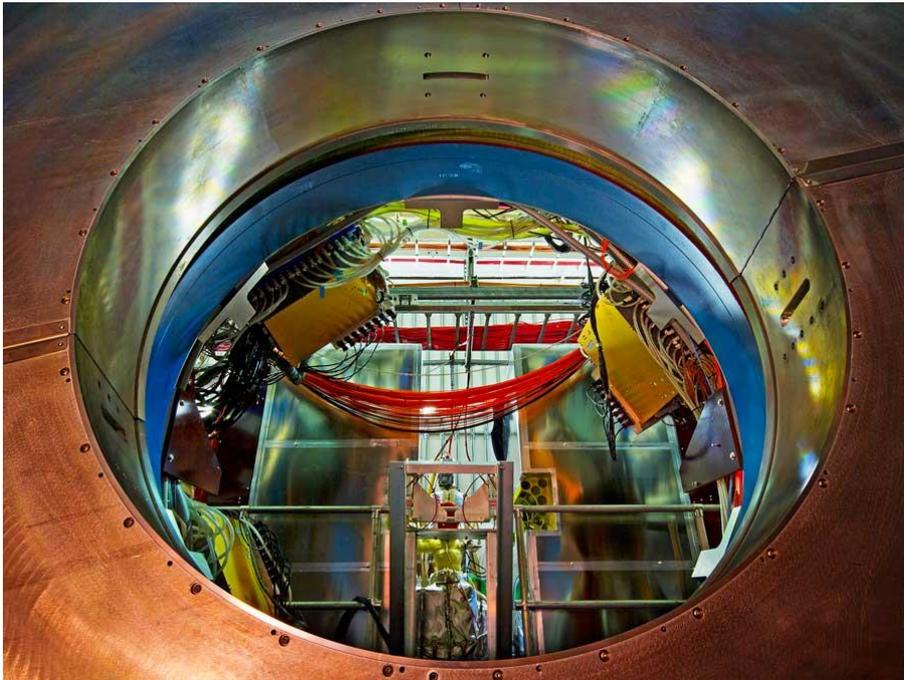
# STAR Run 14 Preparation

First RHIC/AGS Time Meeting for Run 14

January 21, 2014

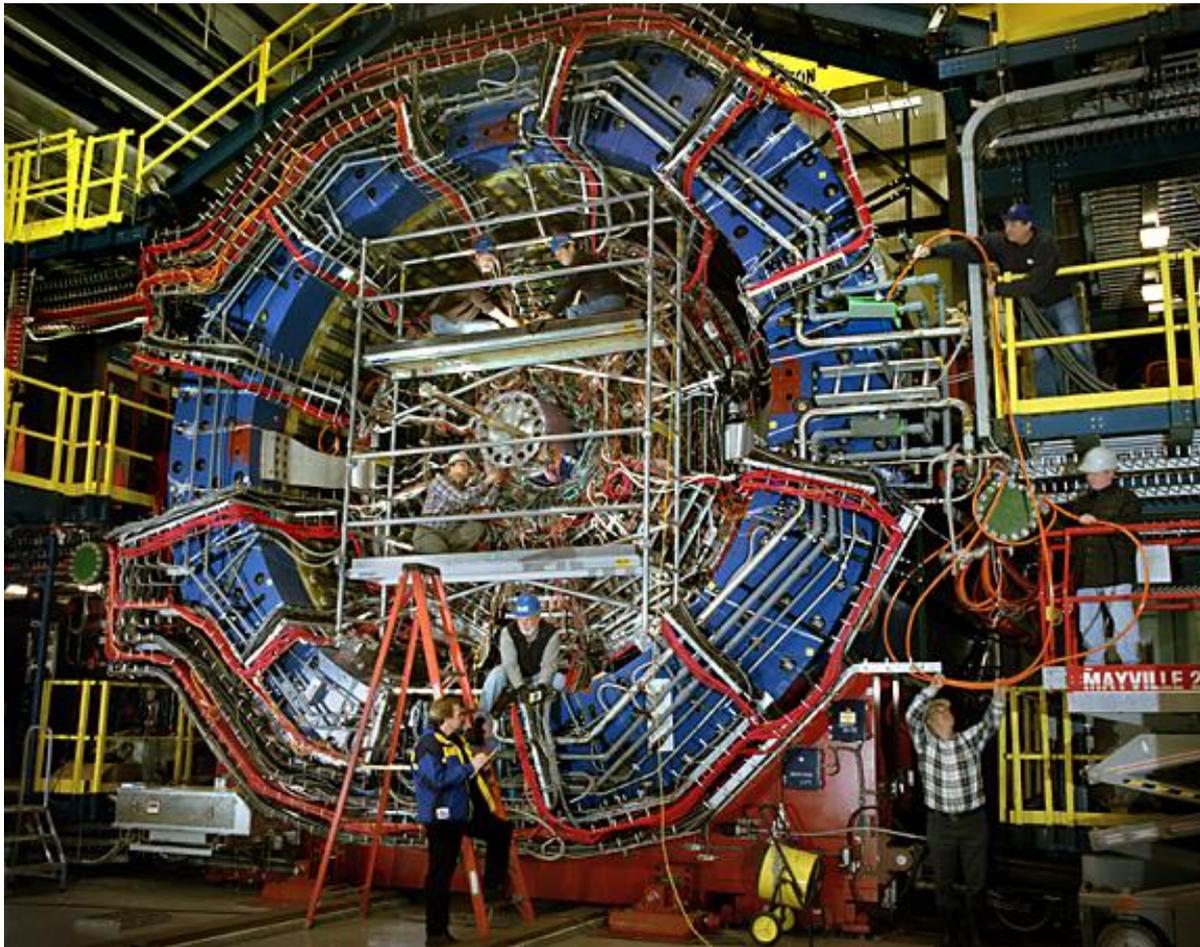
W.B. Christie

- Outline:
  - STAR FY13 Shutdown plan and pictures
  - Summary and remaining tasks



## Major Detector Upgrade Projects in preparation for Run 14:

- Muon Telescope Detector (MTD, complete installation)
- Heavy Flavor Tracker (HFT)

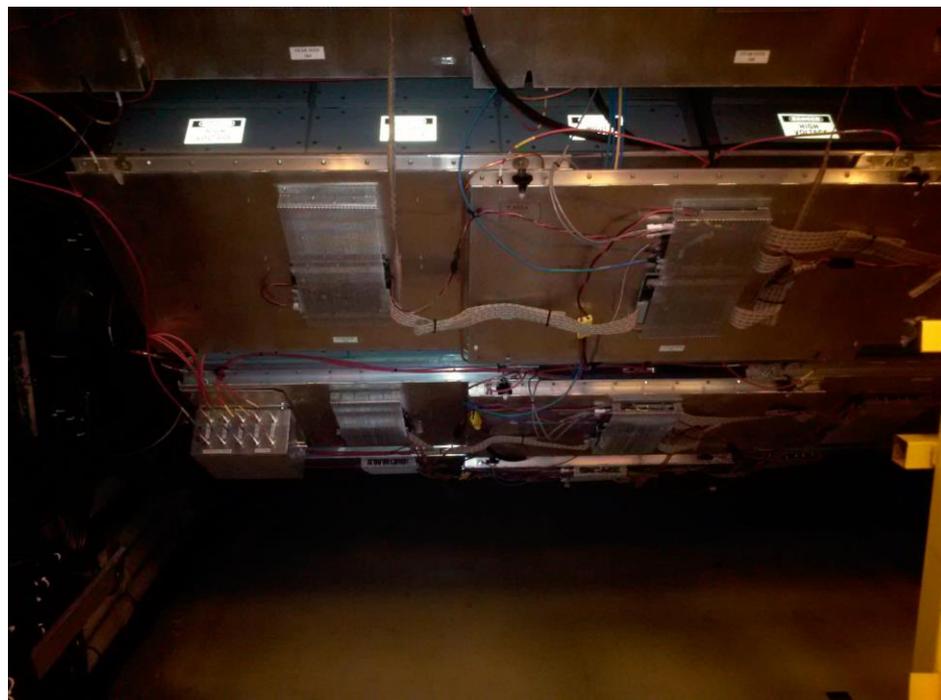


**MTD:**

- A total of 75 MTD modules (60% of total) had been installed for Run 13.
- MTD project 95% installed (117 Modules) prior to Run 14. Last 5 modules will be installed during the run (total of 122 Modules).



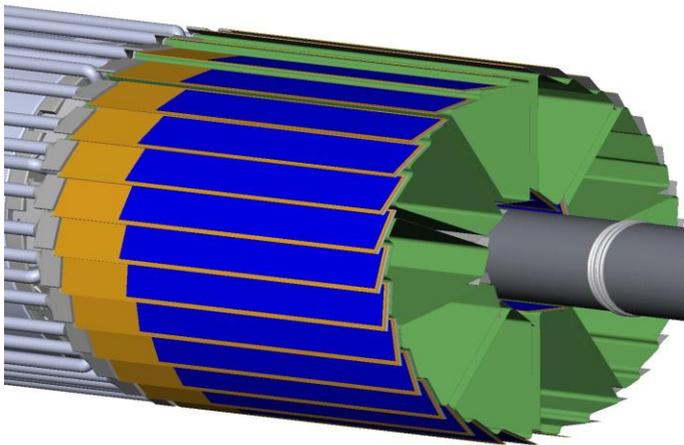
Run 13 installation



Run 14 installation  
(under STAR)

## HFT:

- HFT and FGT both reside in/on the new HFT Inner Detector Support (IDS) carbon Fiber cone structure.
- The IDS, along with new smaller diameter beam pipe, was installed for Run 13.
- A portion (4 of total 10 sectors) of the PXL detector was installed for commissioning during run 13.
- IST and SSD are currently fully installed
- PXL undergoing final checkout. To be installed this week.
- Complete HFT (PXL, IST, & SSD) will be installed for Run 14.

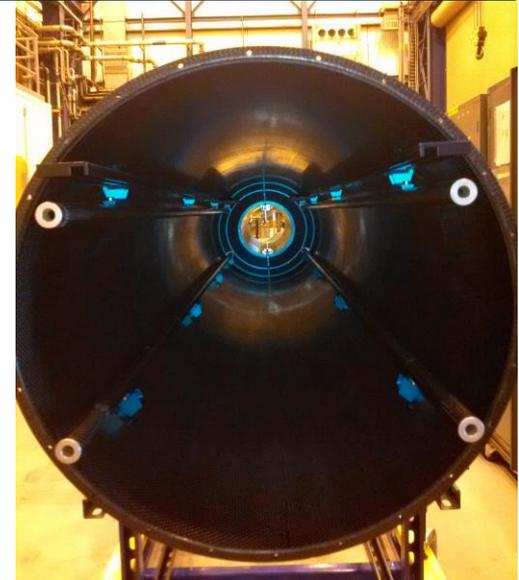




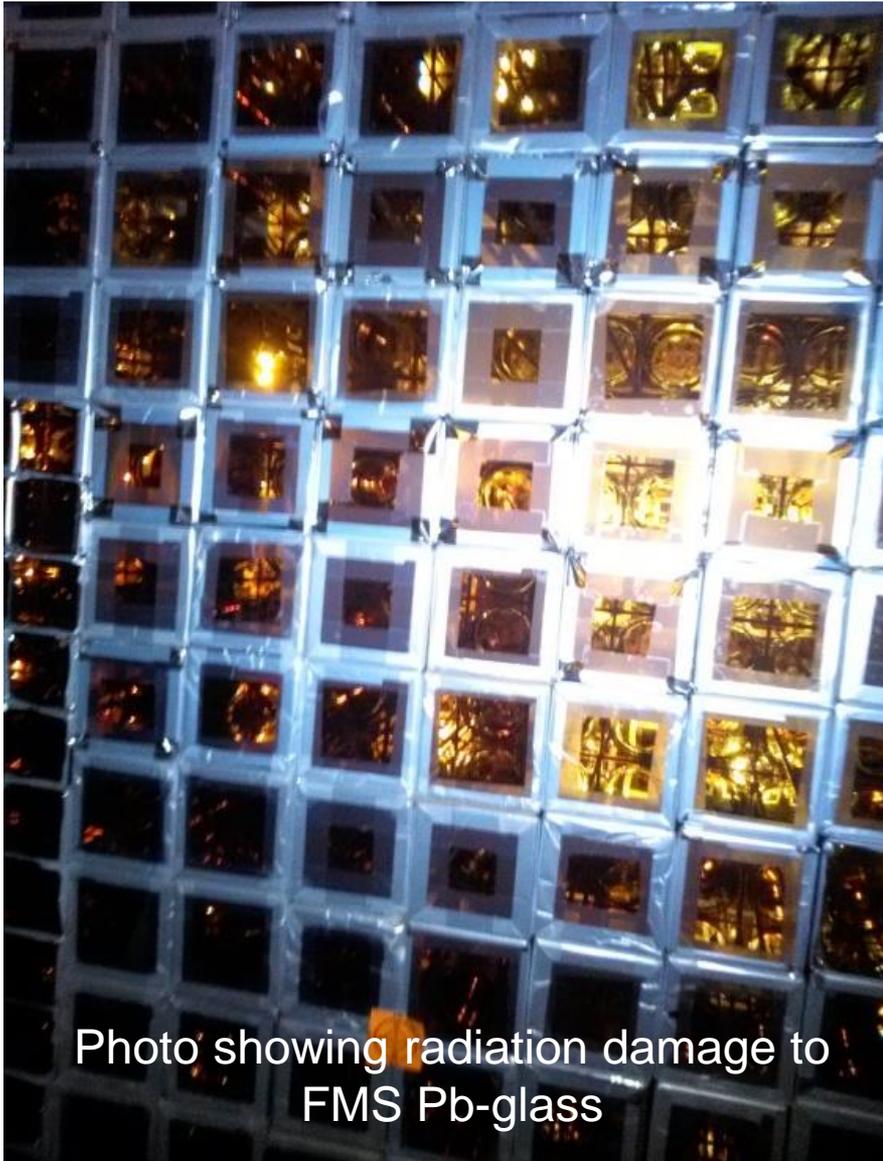
Bob showing orientation of inner cylinder with PXL mounts



Ready for IST installation



June						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
	<b>Shutdown start</b> Remove BBCs remove VPDs Remove E Poletip	Remove W Poletip Install Scaffolding	De-cable, and disconnect top three B.L. MTD trays Disconnect cables (ZDC, VPD, EEMC, etc.) Blowout Coils	Start removal of vacuum pipes (E then W)		
16	17	18	19	20	21	22
	Finish removal of vacuum pipes Hang Fire panel on plat. rail	<b>Remove shield wall</b>	Pull AB floor blks	Remove all pipe (gas, H2O, etc.) from NW of STAR Remove seismics	Remove BEMC top Move PASS umbilical Remove Mag. H2o pipes	
23	24	25	26	27	28	29
	Remove MTD trays from top 3 Backlegs Disconnect power	Remove Power bridge remove MCW pipes Disc. Fire Panel	Remove stairs & Bridge, Prepare Hydraulics Raise STAR + 6 mm	<b>Roll STAR out</b>	Install Bridge/Power and MWC water. Install stairs	
30						

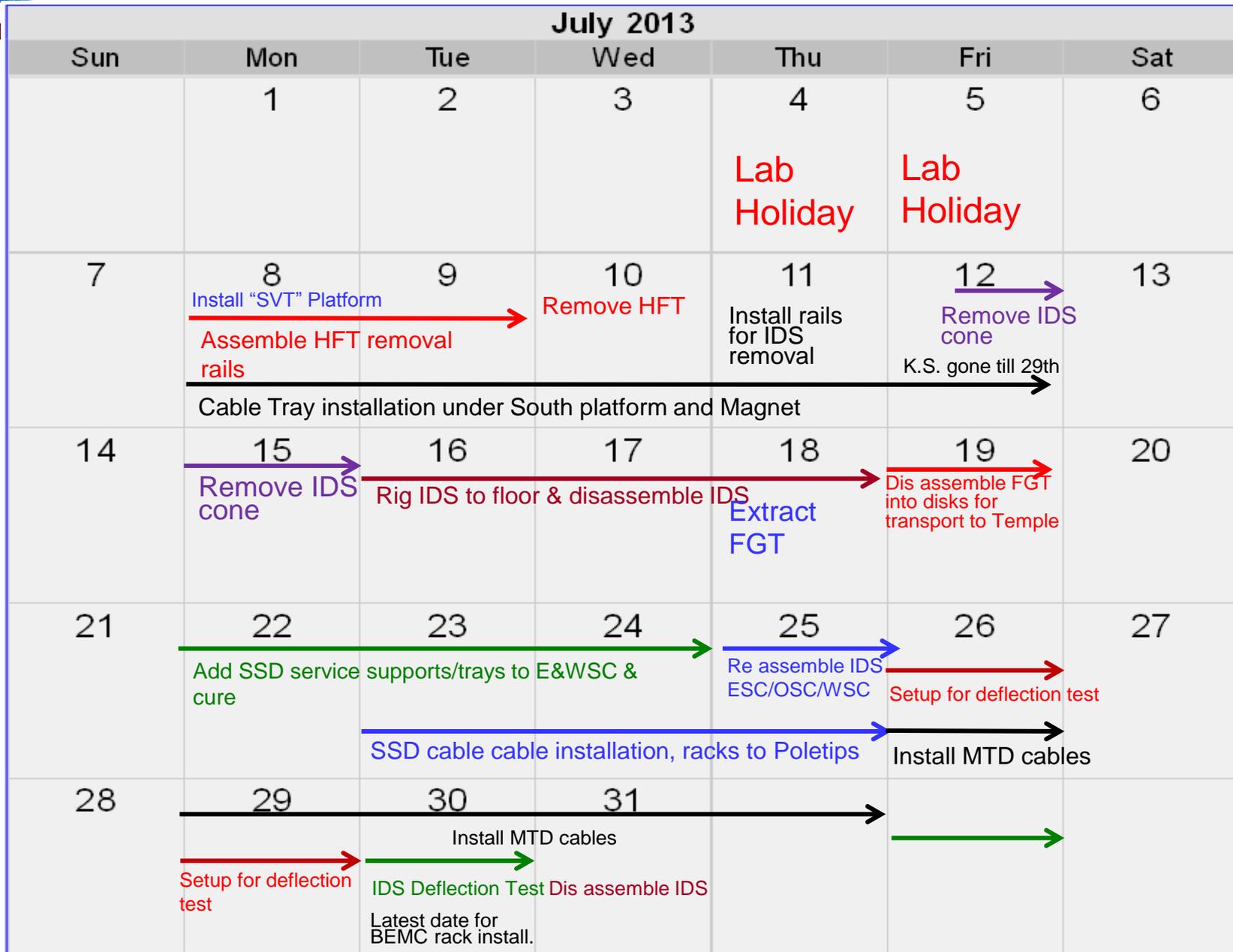


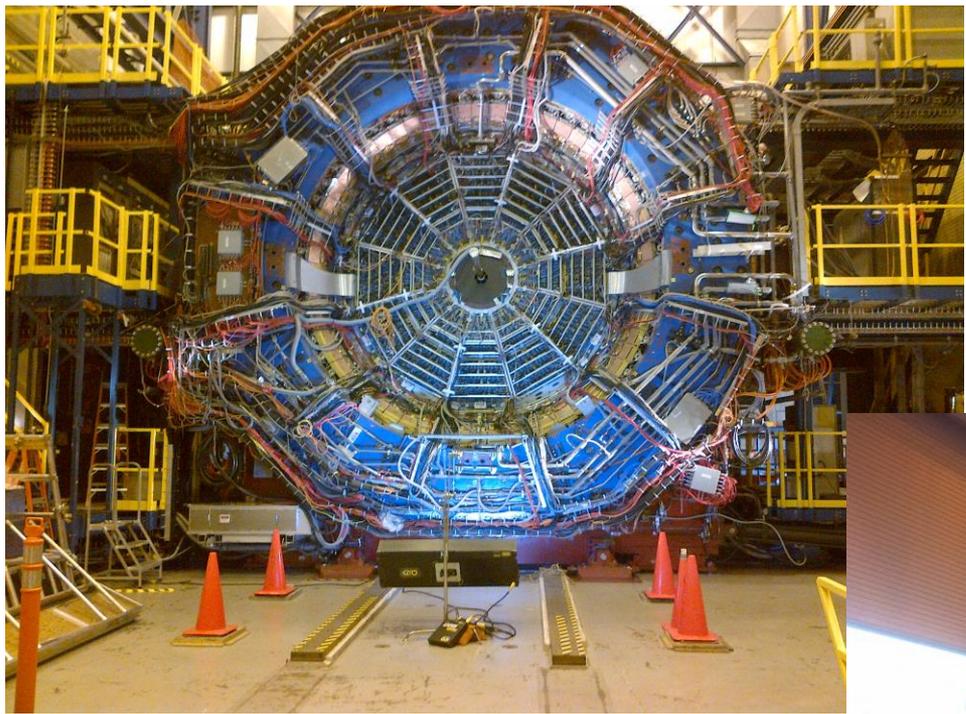
The FMS was unstacked in June and early July.

The Pb-glass blocks were exposed to sunlight which repaired the majority of the radiation damage.

A plan has been compiled for resolving the issues with the PMT bases.

The plan is to make these repairs and restack the FMS so that it is ready to go for Run 15.

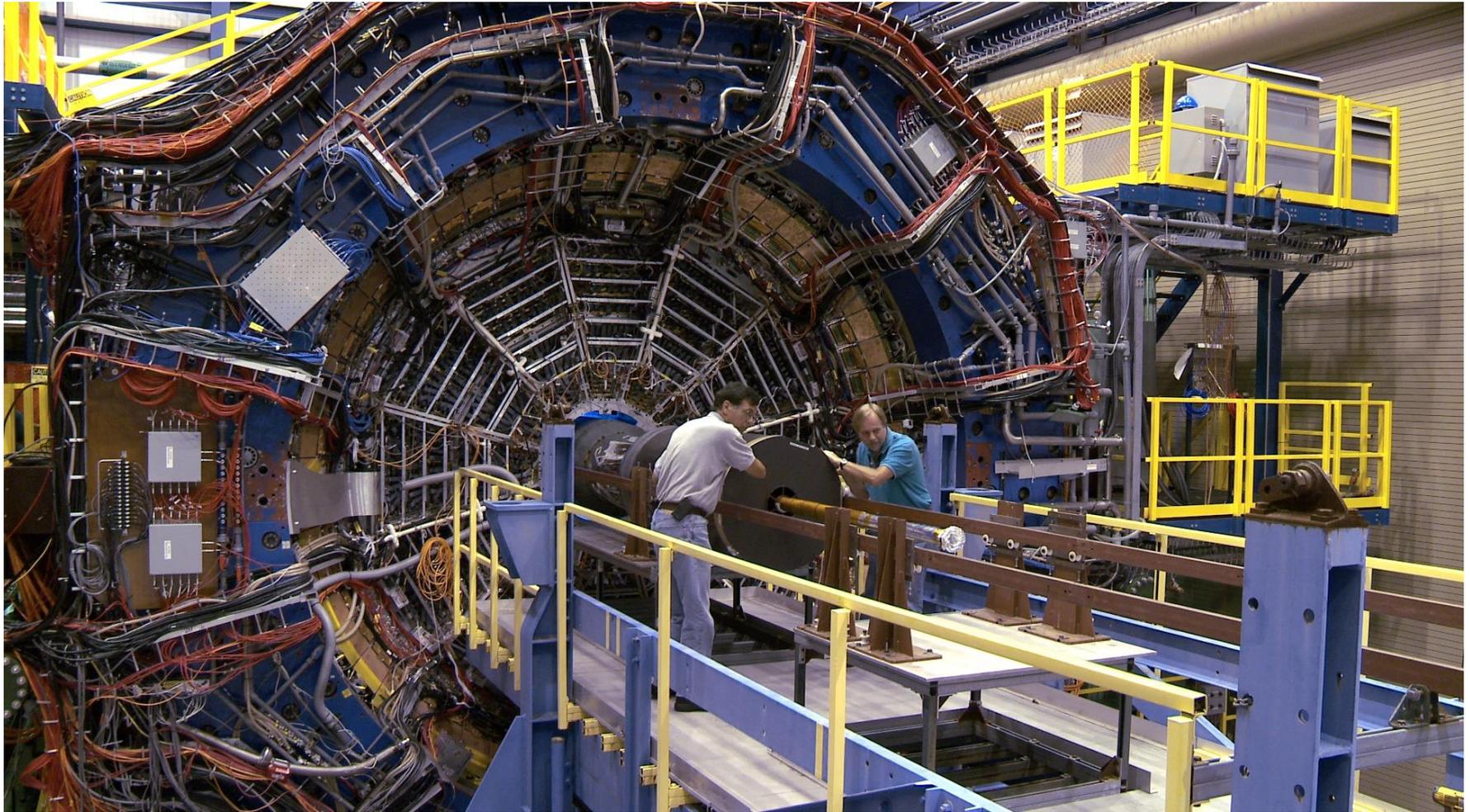




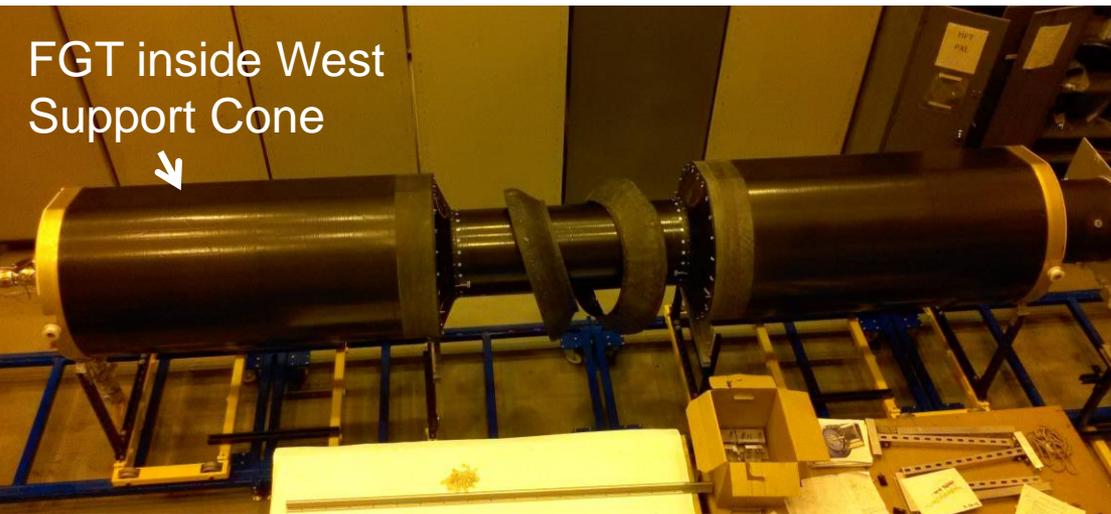
STAR in Assembly Building by end of June

IDS Installation platform assembled early July





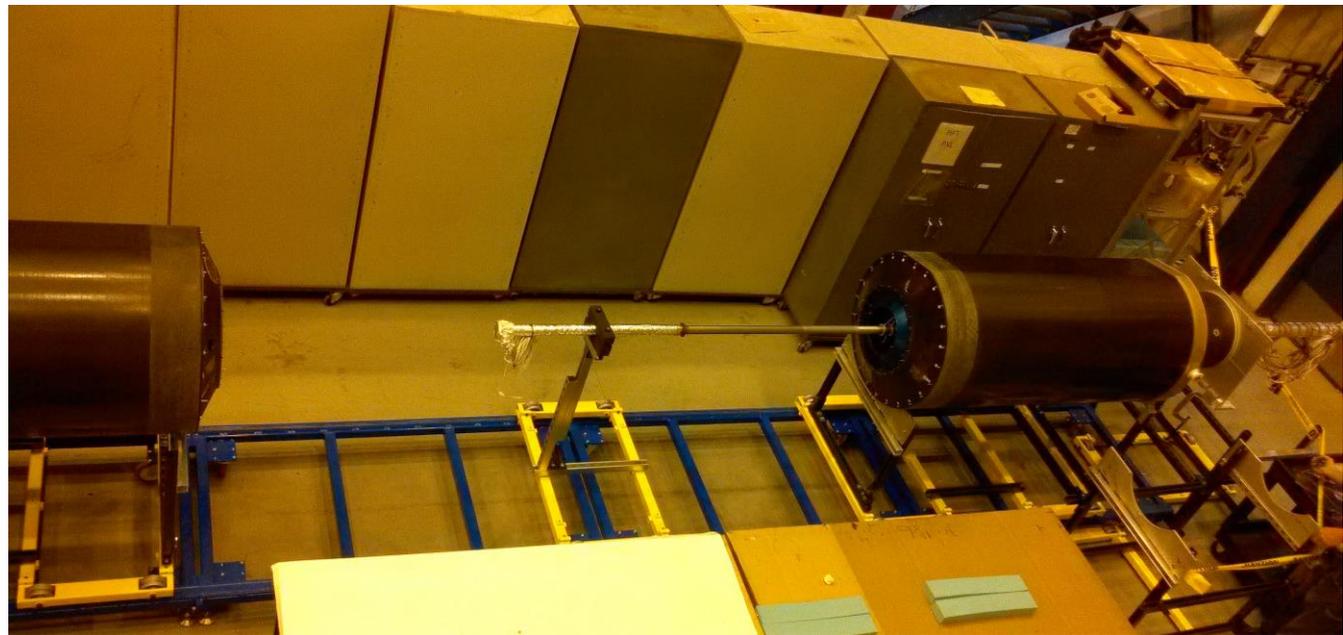
Friday, July 10, 2013.  
*(Reused last year's picture)*



IDS placed on Assembly carts

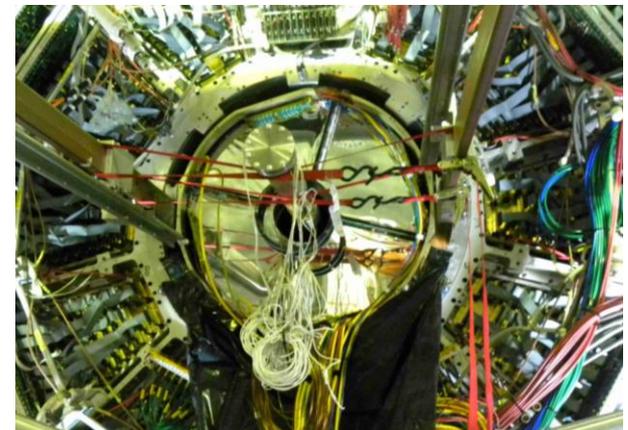
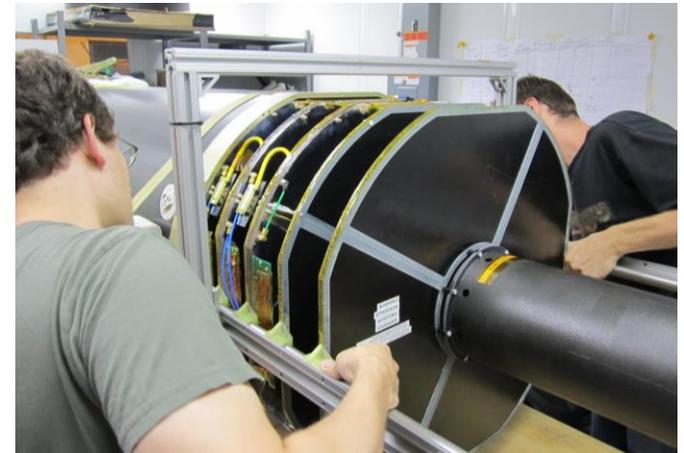
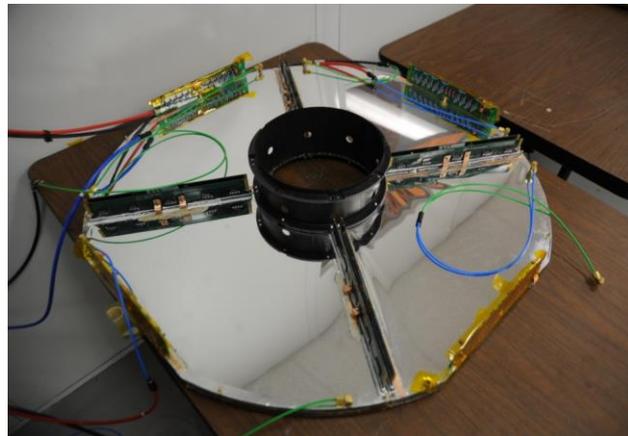
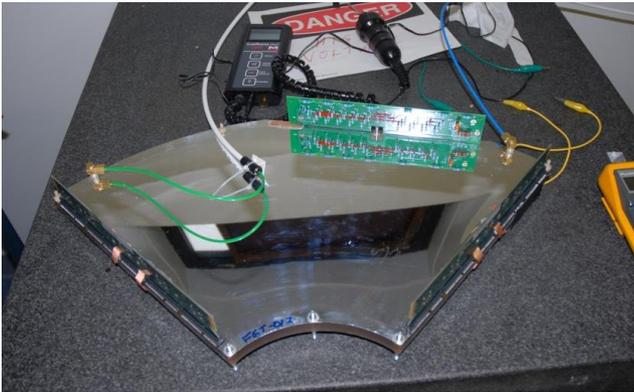
IDS partially dis assembled, exposing small diameter central beam pipe.

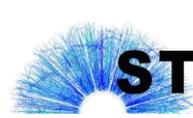
FGT removed from WSC



FGT:

The FGT was removed from the Inner Detector Support Cylinder (IDS) in July and taken to Temple University for repair and refurbishment. It will not be in for the upcoming Run 14.





# STAR ☆ IDS Assembled for Load Deflection Testing (late July)

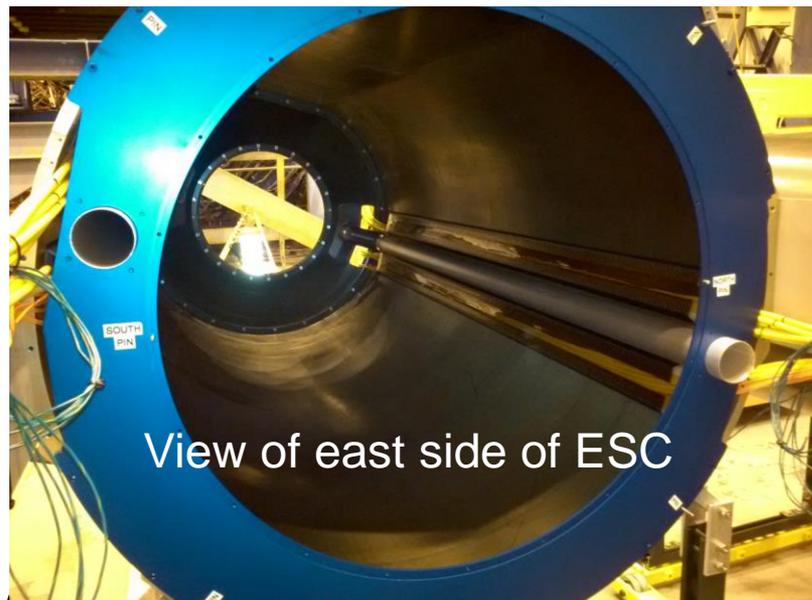
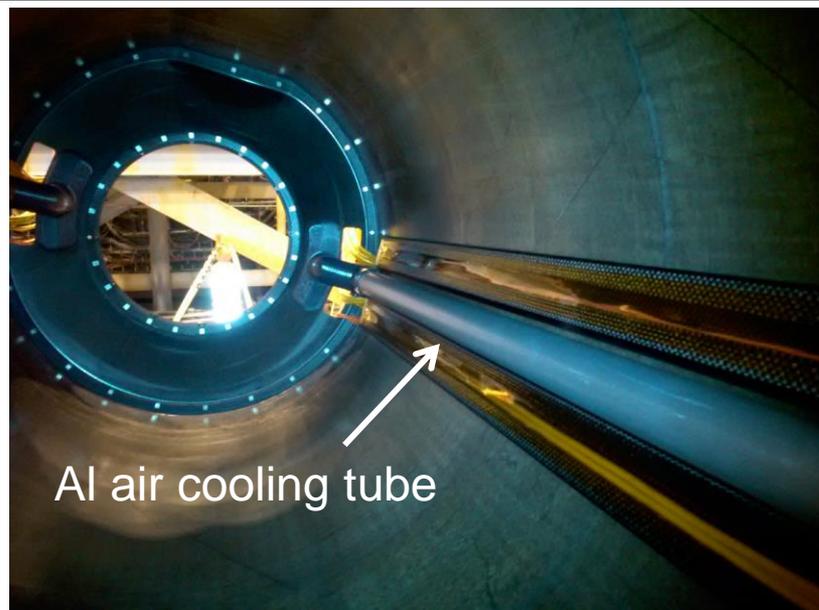
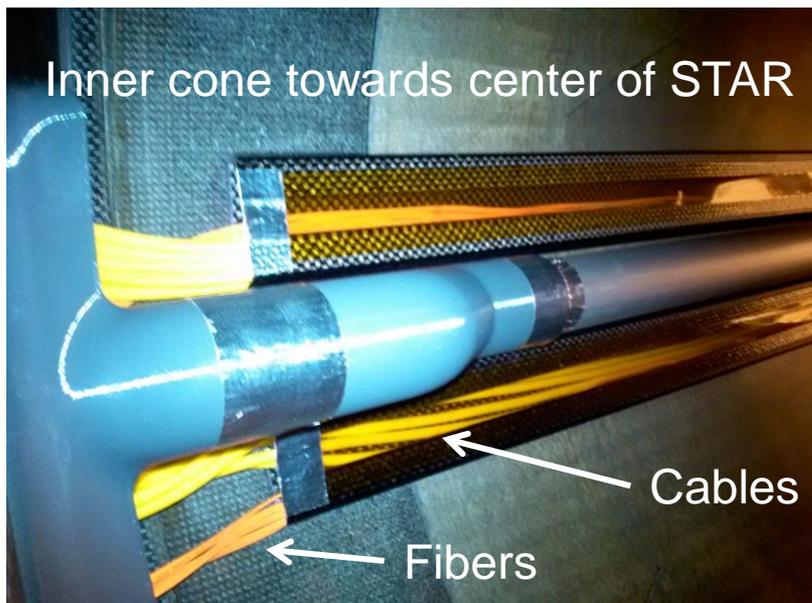


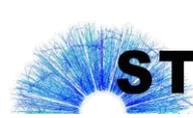
Multiple dial indicators to measure deflection of IDS placed at various locations.



Measurements of the Deflection made for various loads on the center of the IDS. Results compared to Mechanical model expectations.

**All Checked out OK.**

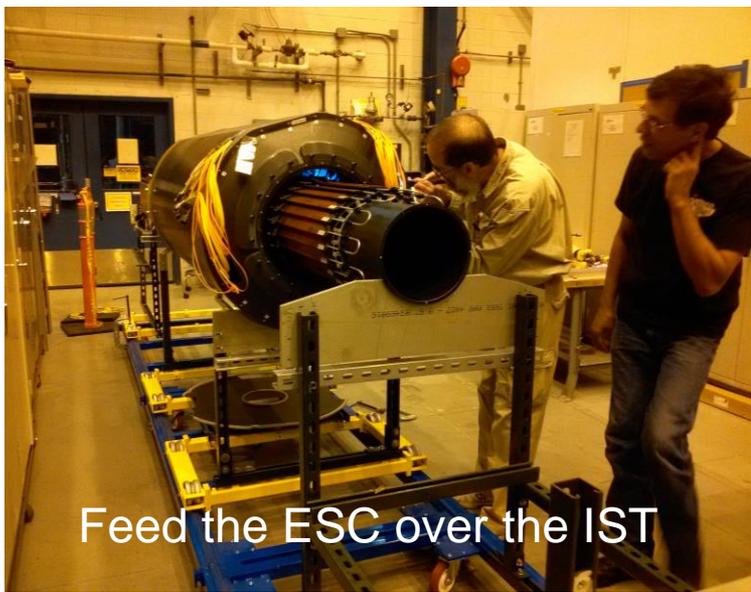
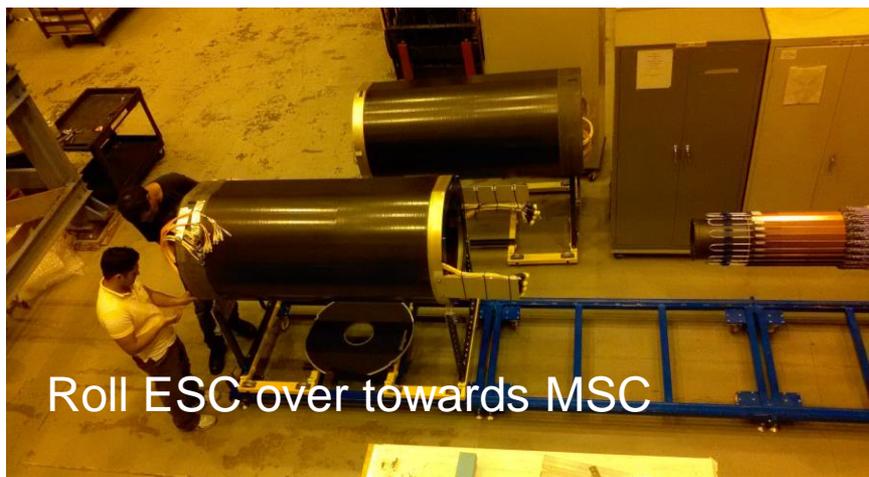


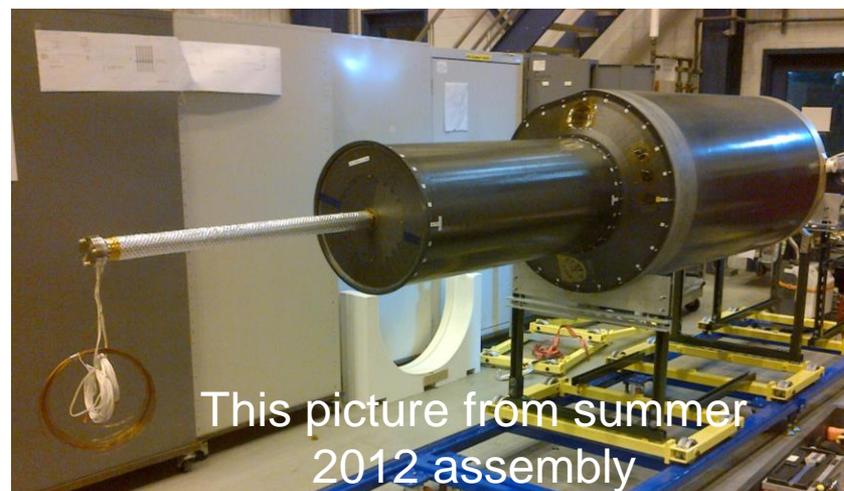
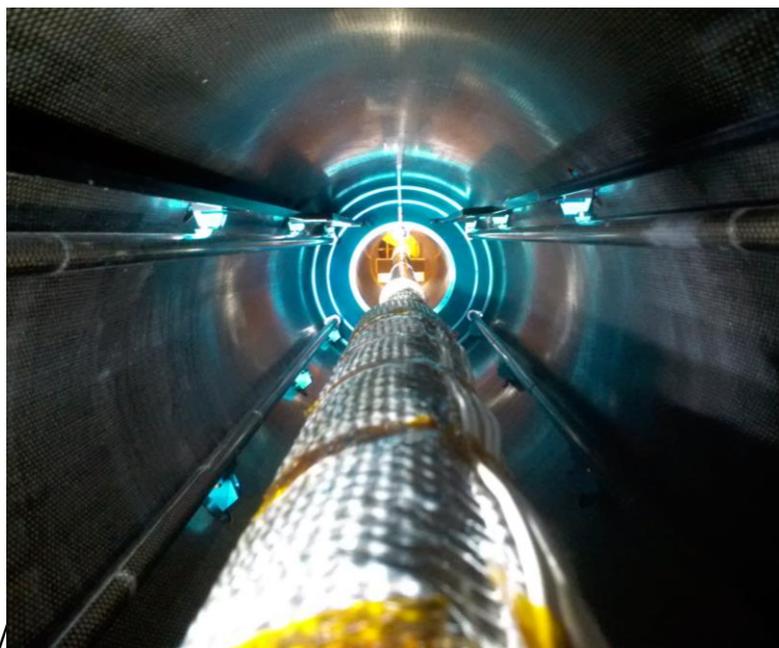
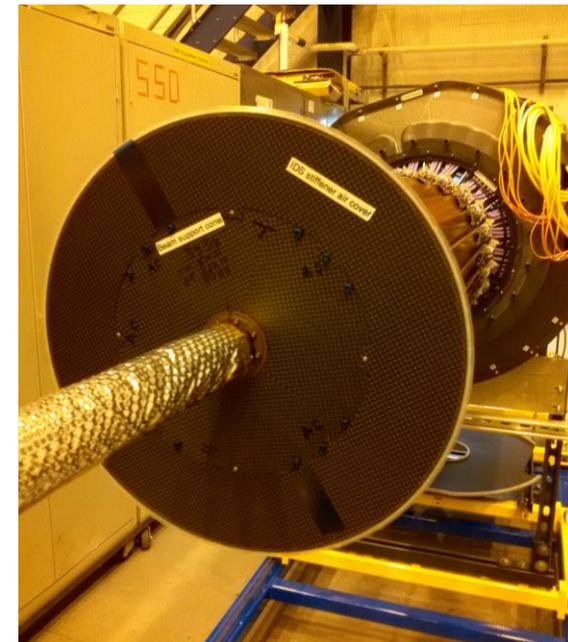
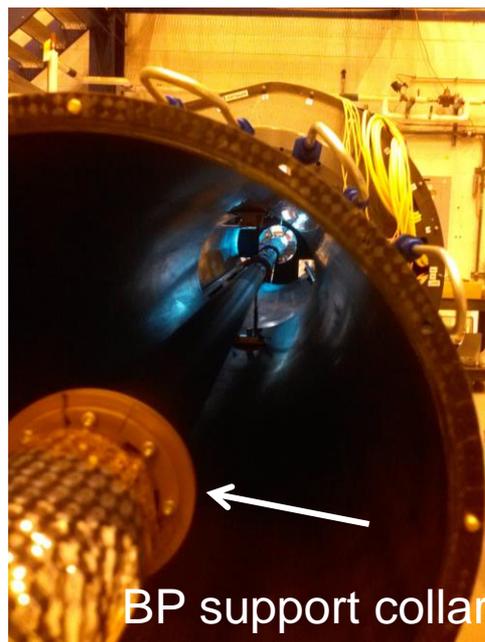


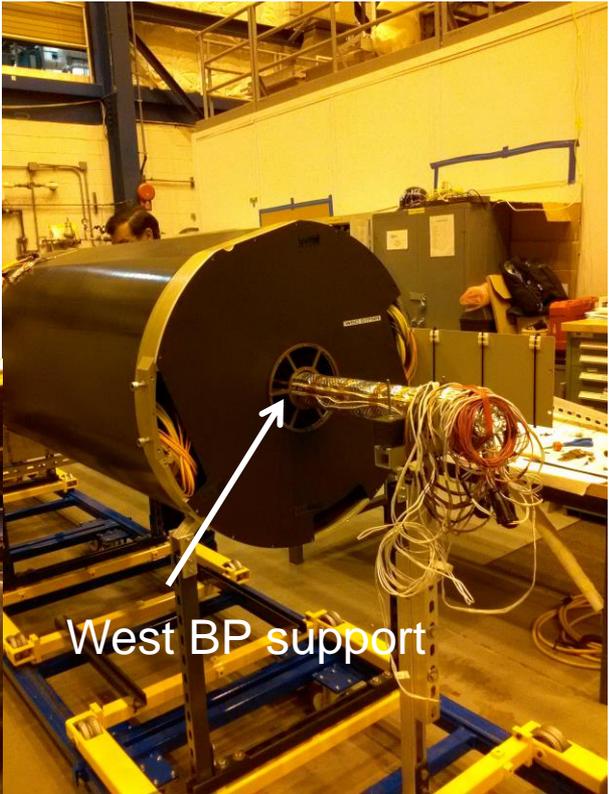
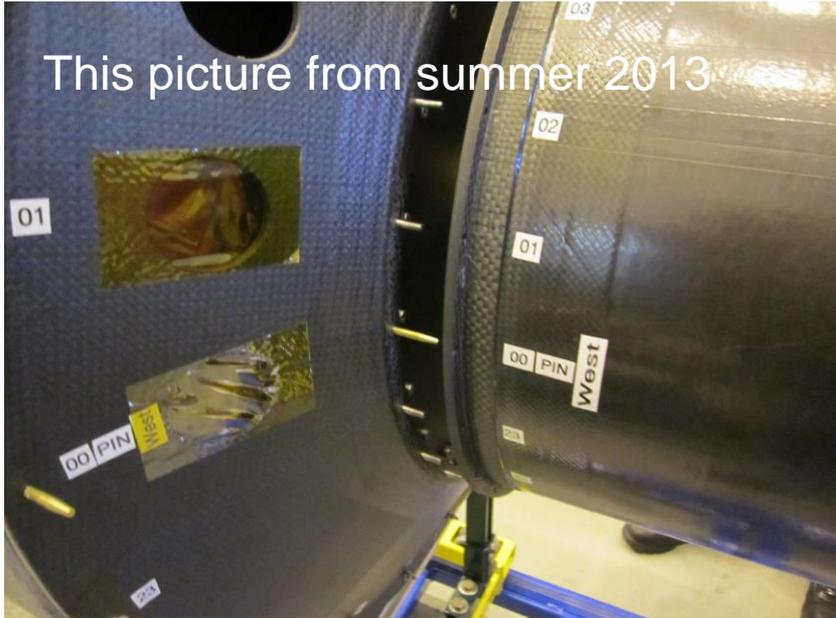
# STAR ☆ Gerrit, Yaping, and crew install IST onto the MSC during June



Gerrit and the IST group got the IST installed onto the MSC and tested by the end of June.

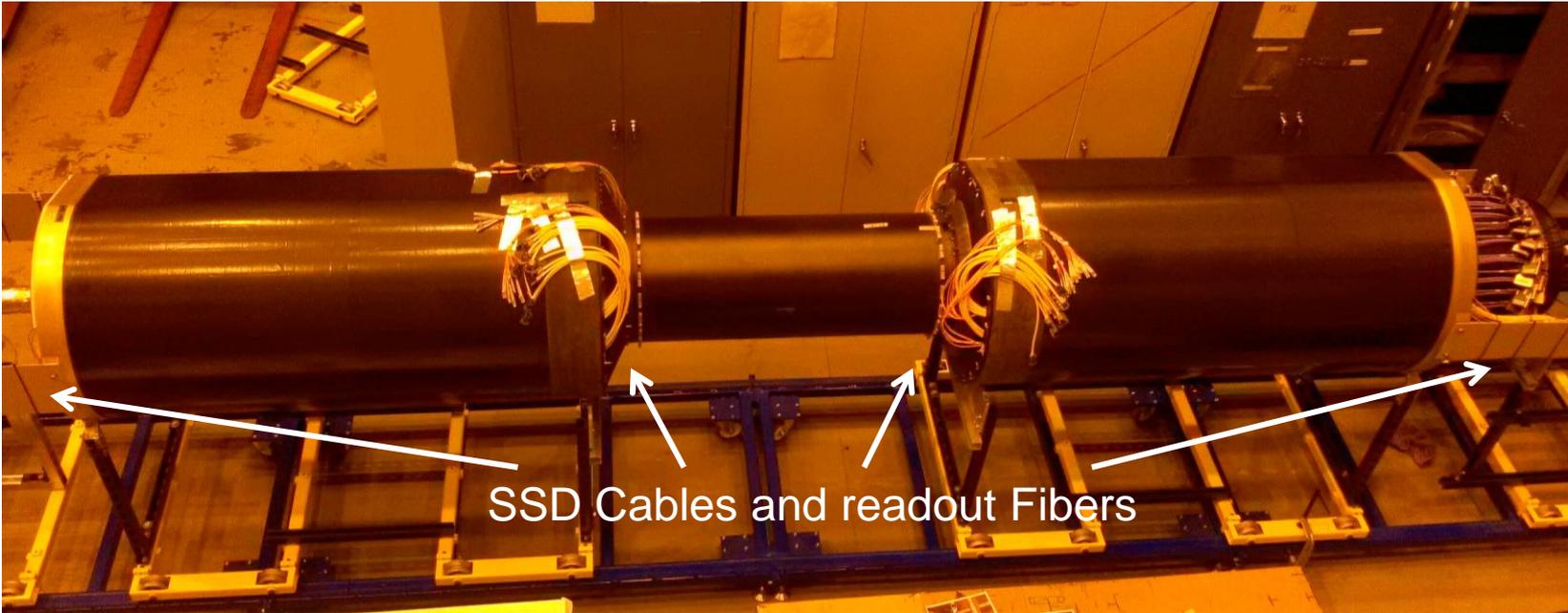


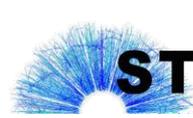




IDS Assembled and ready for SSD Ladder mounting August 9<sup>th</sup>.







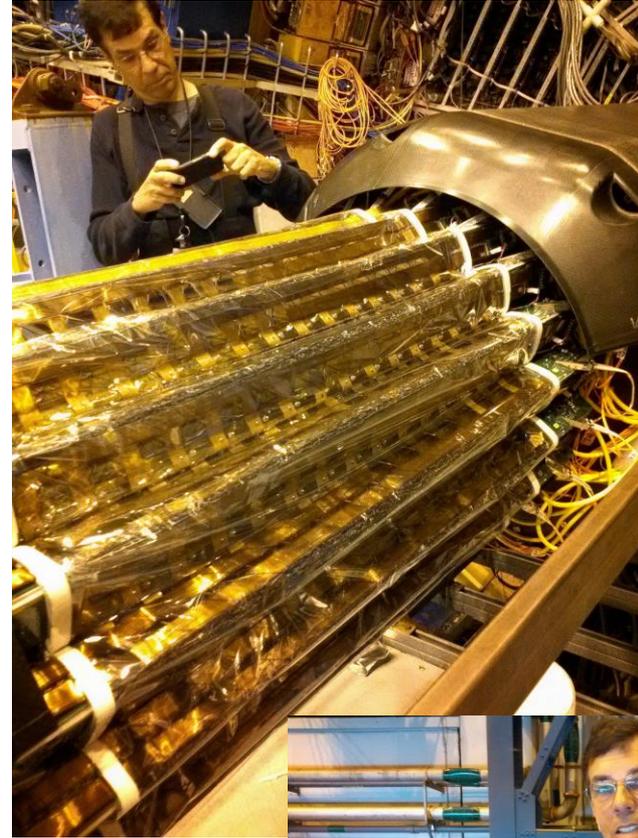
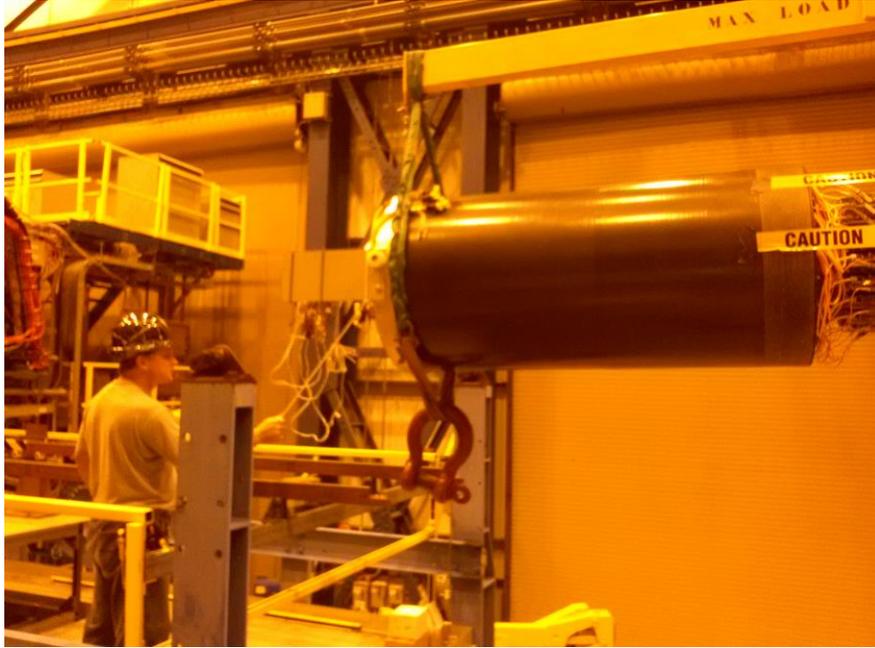
# STAR ☆ Jim Thomas and SSD group install SSD onto the IDS in August



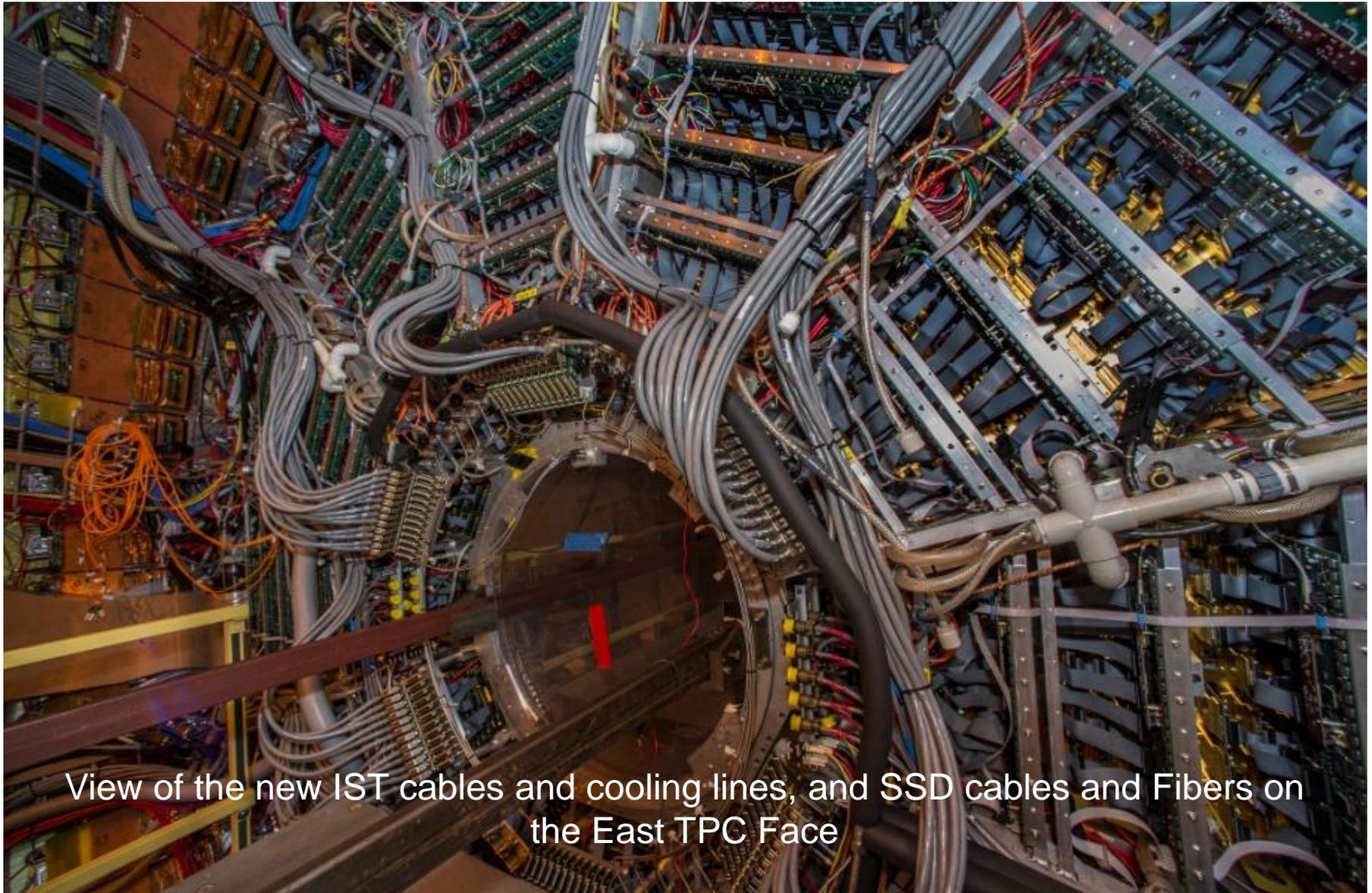
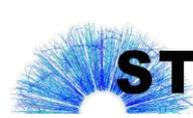
SSD ladders installed onto the IDS and tested



The initial installation and testing was completed by mid August, and then continued with testing. An issue on the ladders was found, diagnosed, and resolved by the first week of September.



Once onto the installation rails, the SSD was installed into the Inner Field Cage, allowing for the further testing of the entire SSD at once, using the installed cabling and fibers. This testing continued until September 30<sup>th</sup>.



View of the new IST cables and cooling lines, and SSD cables and Fibers on the East TPC Face



**STAR** ☆ STAR gets Rolled back into the Interaction Hall October 2<sup>nd</sup>..





# STAR ☆ Final STAR Detector positioning for October 2013 Roll in to IR

INDEPENDENT VERTICAL AXIS CONTROL

	SETPOINT	ACTUAL	
F1- SE AXIS	0	0.778	START F5
F2- NE AXIS	0	0.774	ZERO F6
F3- NW AXIS	0	0.769	F7 STOP
F4- SW AXIS	0	0.774	CLEAR F9
			RETURN F10

Goal for Vertical Position

0.5 inches  
+ 6.9 mm  
0.772 inches



East N – S position  
~ perfect

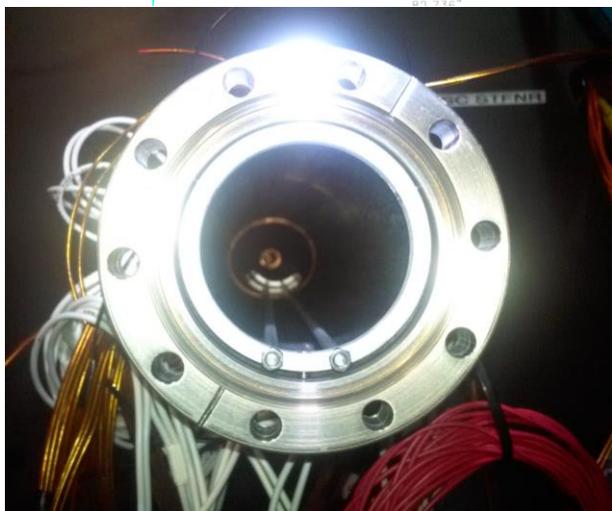
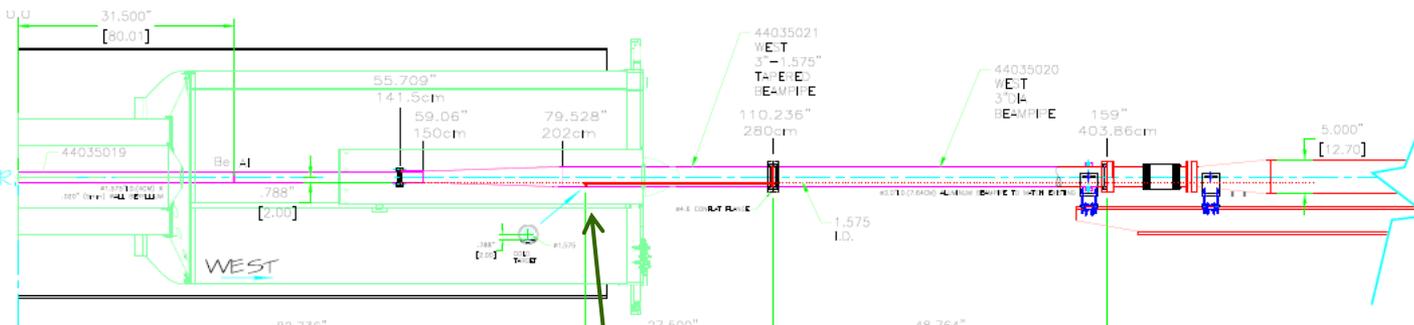


West N – S position  
~ 1/8 inch North

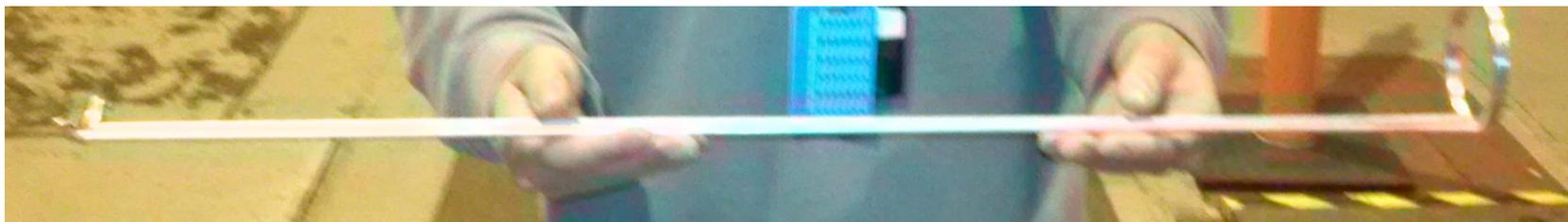
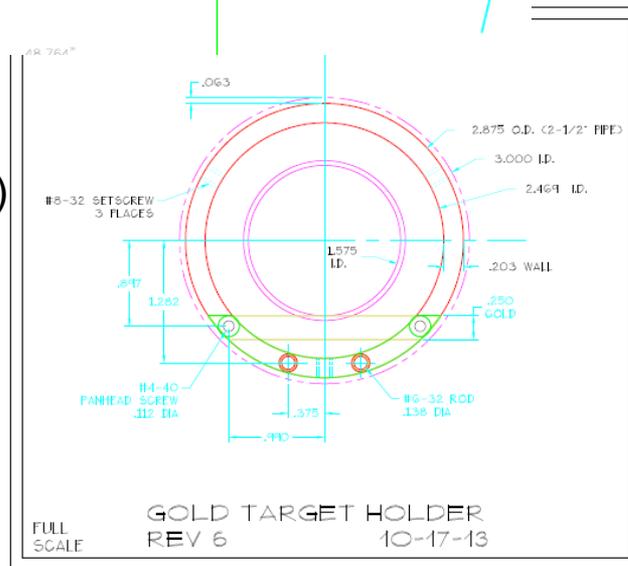


- Target is located on the West side of STAR (Yellow incoming beam)
- Actual beam can't hit target without hitting STAR small diameter pipe.

Center of STAR



Target location (~ West face of TPC)



# STAR ☆ Summary

- The Summer 2013 Shutdown had another ambitious plan
- Items/tasks still to be done include:
  - Install and cable/plumb the PXL detector (this week).
  - Checkout and bring online the STAR Magnet (ASAP, 3 days effort)
  - Complete and submit Environmental emissions document.
  - HCAL R&D effort (not part of physics running/plan)
- Cosmic ray testing scheduled from now until beam operations.
- Debug/commission new silicon systems (PXL, IST, SSD) from now until 200 GeV Au+Au (~2<sup>nd</sup> week of March or so).
- Thank you from STAR to C-AD for all of the Technical Support and resources provided throughout the FY13 Maintenance Shutdown

