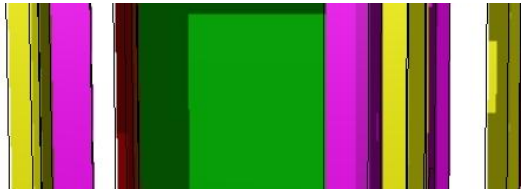
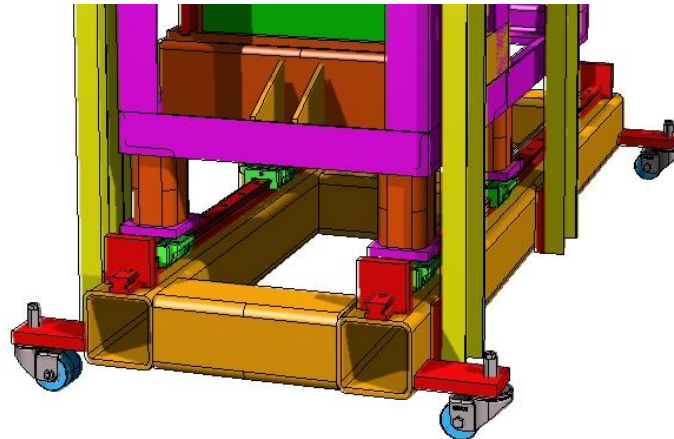


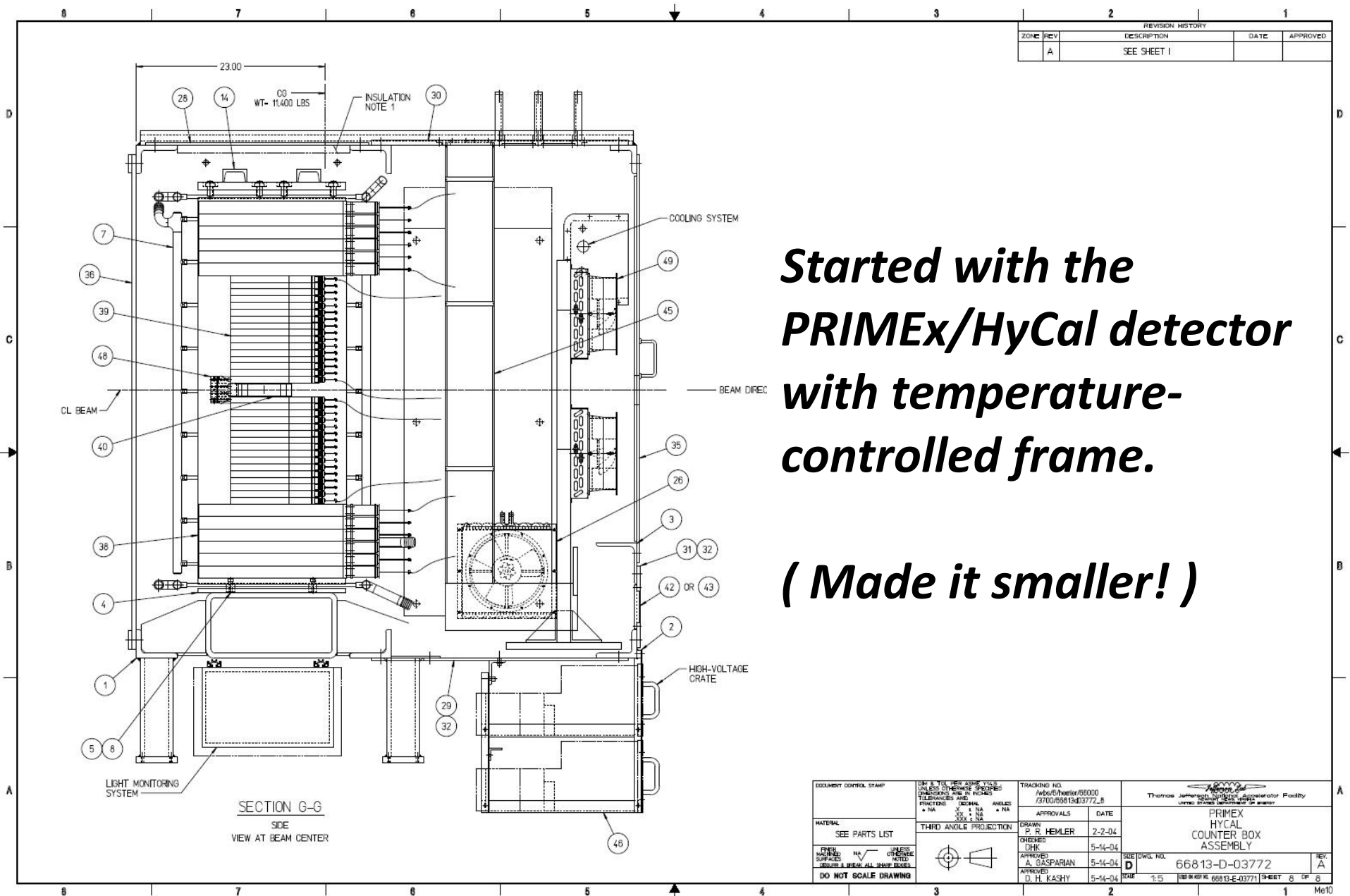
Neutral Particle Spectrometer Design



Mike Fowler
Sr. Designer, Experimental Hall C

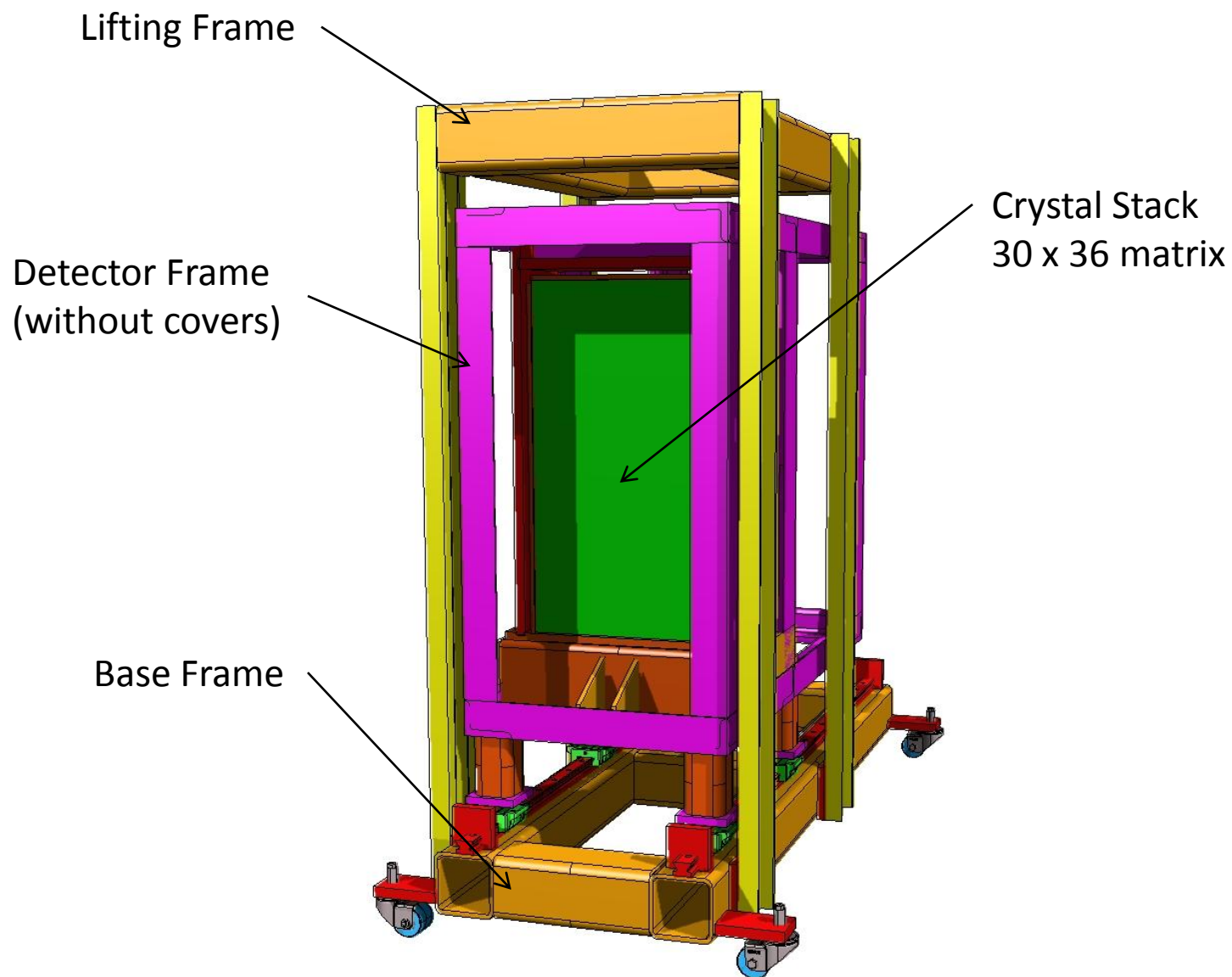


Collaboration Meeting, November 14, 2013

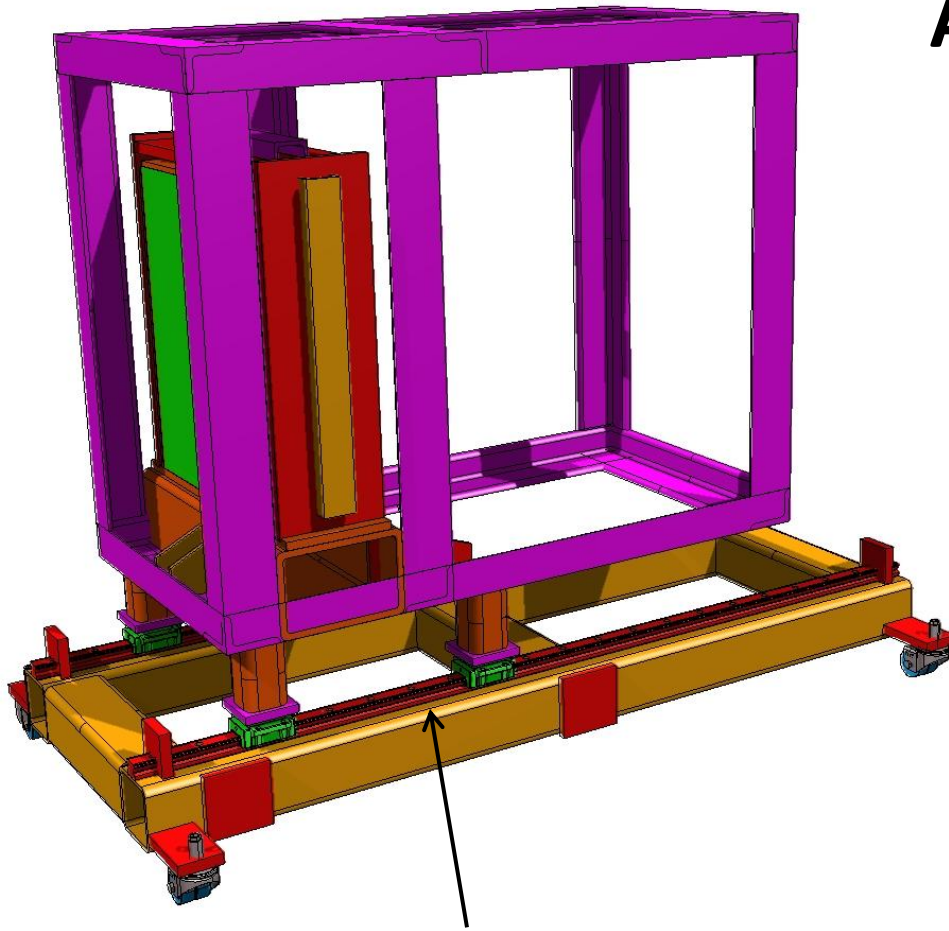


***Started with the
PRIMEx/HyCal detector
with temperature-
controlled frame.
(Made it smaller!)***

DOCUMENT CONTROL STAMP		TRACKING NO.		REVISION HISTORY	
MATERIAL		/wbc/primex/58000		ZONE	REV
SEE PARTS LIST		/5700/58000/58000		A	SEE SHEET I
THIRD ANGLE PROJECTION		APPROVALS		DATE	APPROVED
DO NOT SCALE DRAWING		P. R. HEMLER		2-2-04	
		CHECKED		5-14-04	
		A. CASPARIAN		5-14-04	
		APPROVED		5-14-04	
		D. H. KASHY		5-14-04	
		SIZE (DWG. NO.)		66813-D-03772	REV. A
		SCALE		1:5	
		SHEET		8 OF 8	

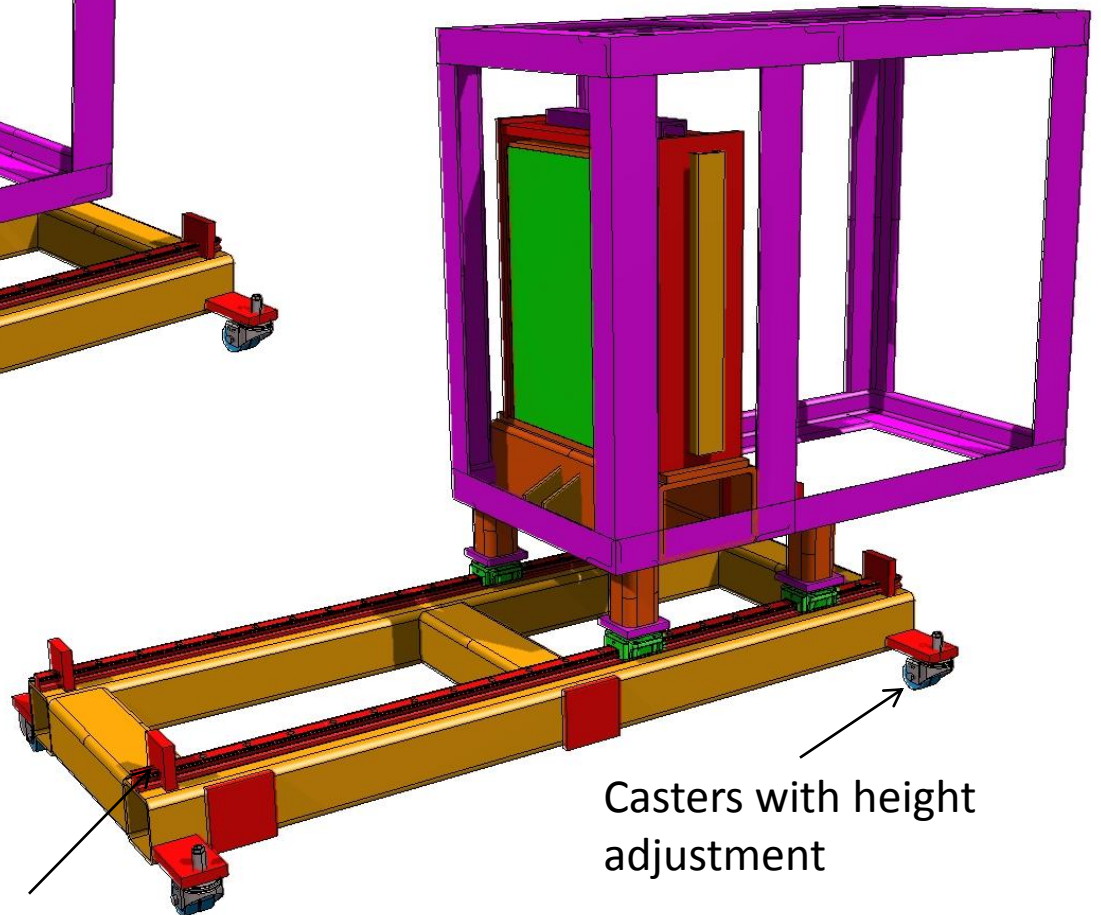


Adjustable in Z



THK Slides
1 meter adjustment
2+ positions per setup

Adjustable slide stops



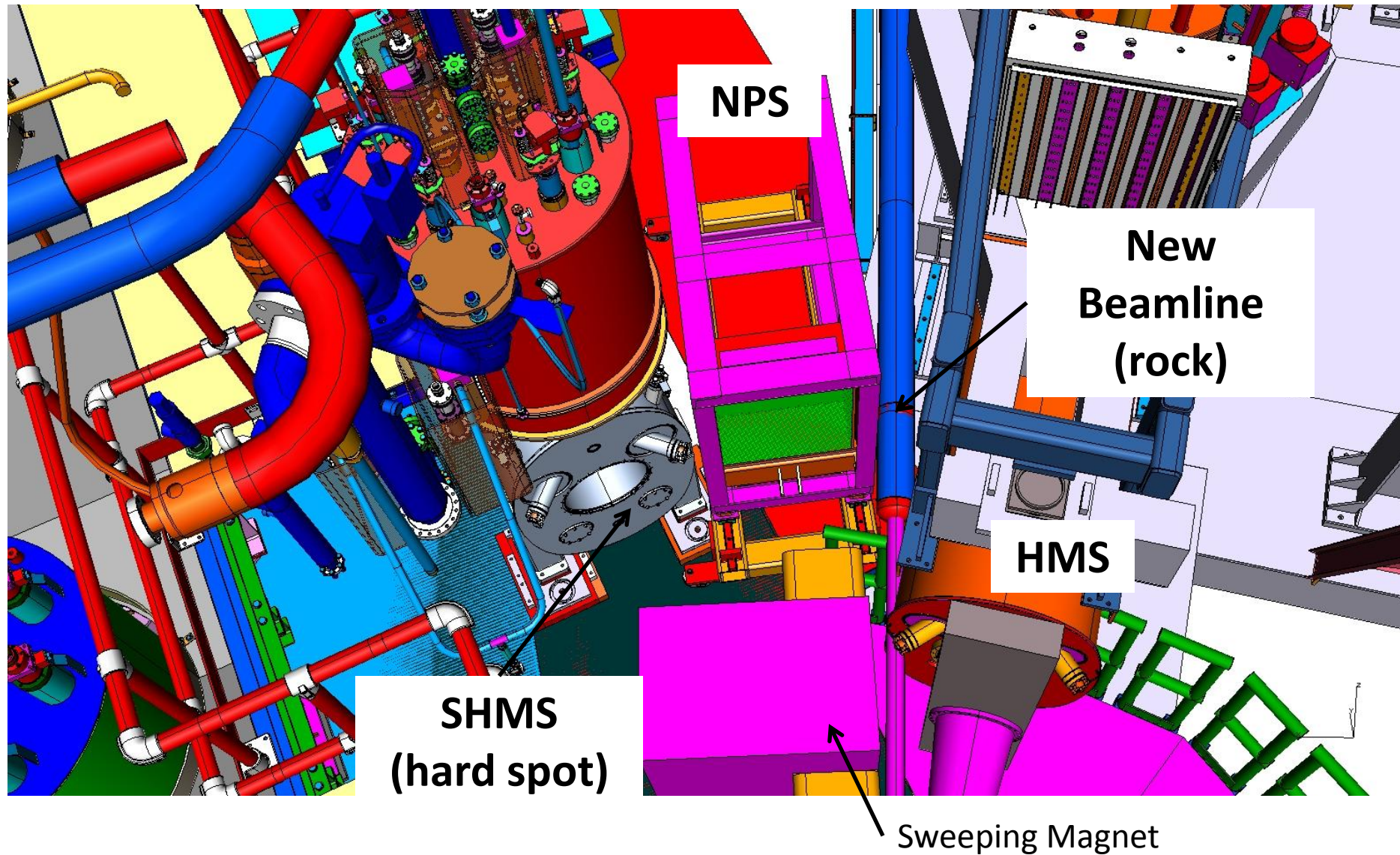
Casters with height
adjustment

The Numbers

Small Angle Setups					SHMS Max 40 deg.
Detector Position (meters)	Must Have (Deg.)	Wish List (Deg.)	Detector Minimum Angle (Deg.)	SHMS Minimum Angle (Deg.)	Detector Max. (Deg.)
3	10.0	8.0	9.6	25.0	24.6
4	7.0	5.5	7.2	22.6	24.6
6 - 7	5.5		6.7	21.5	25.2
9 - 10	10.0		5.2	17.7	27.5
11 - 12	10.0		5.2	17.7	27.5

Why?

NPS: 3 meter position, Birds Eye View

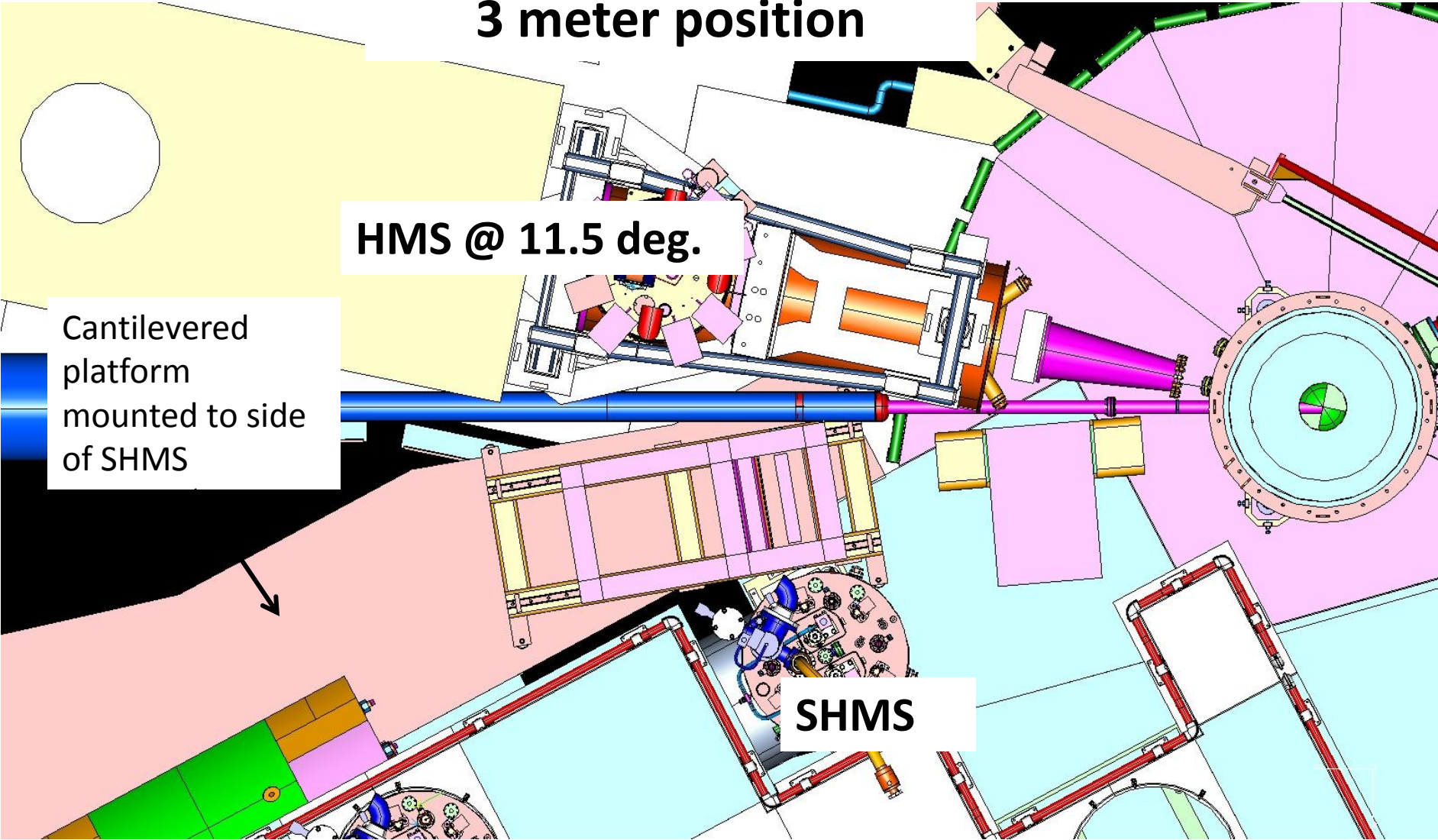


Top View 3 meter position

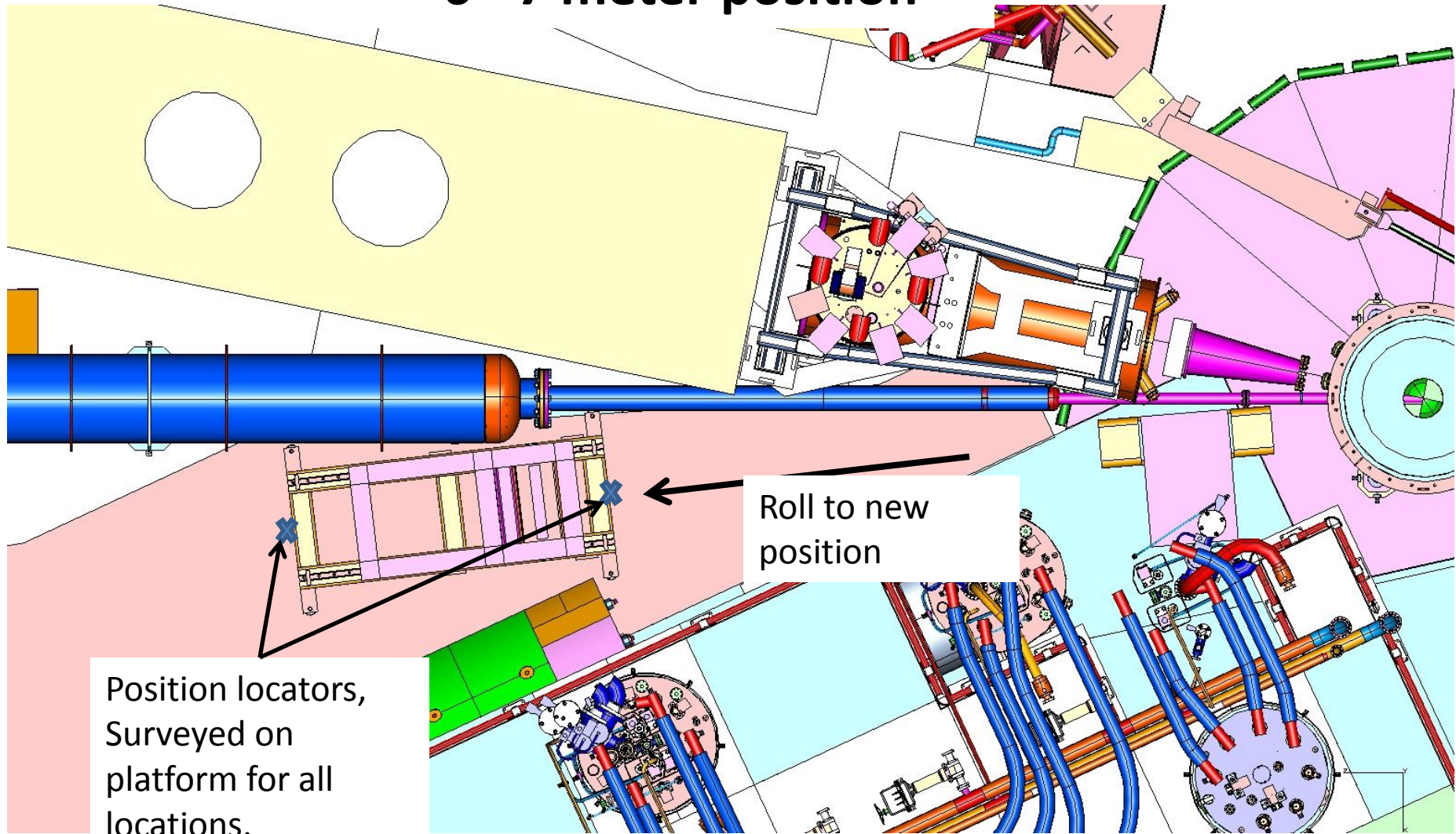
HMS @ 11.5 deg.

Cantilevered
platform
mounted to side
of SHMS

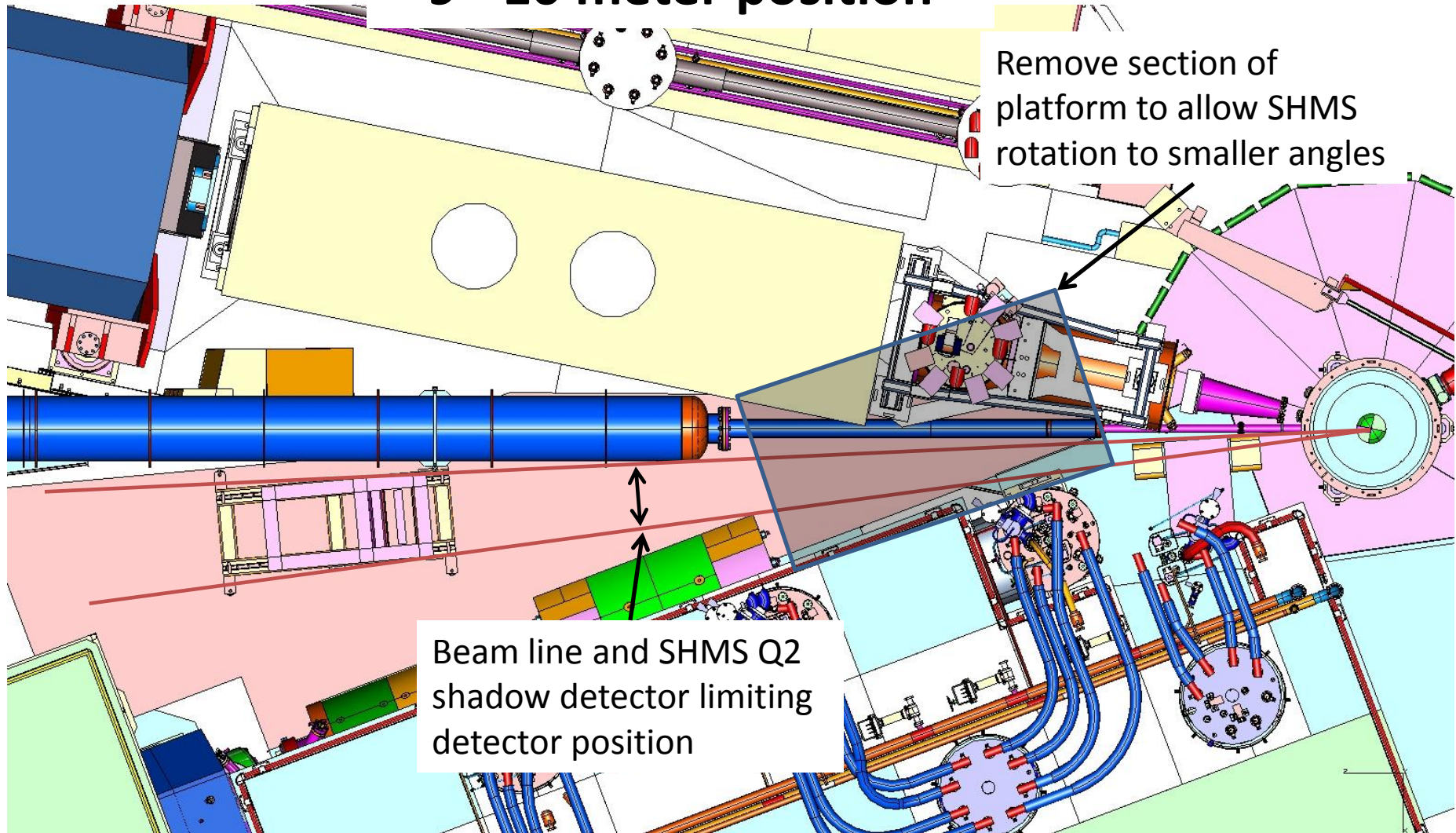
SHMS



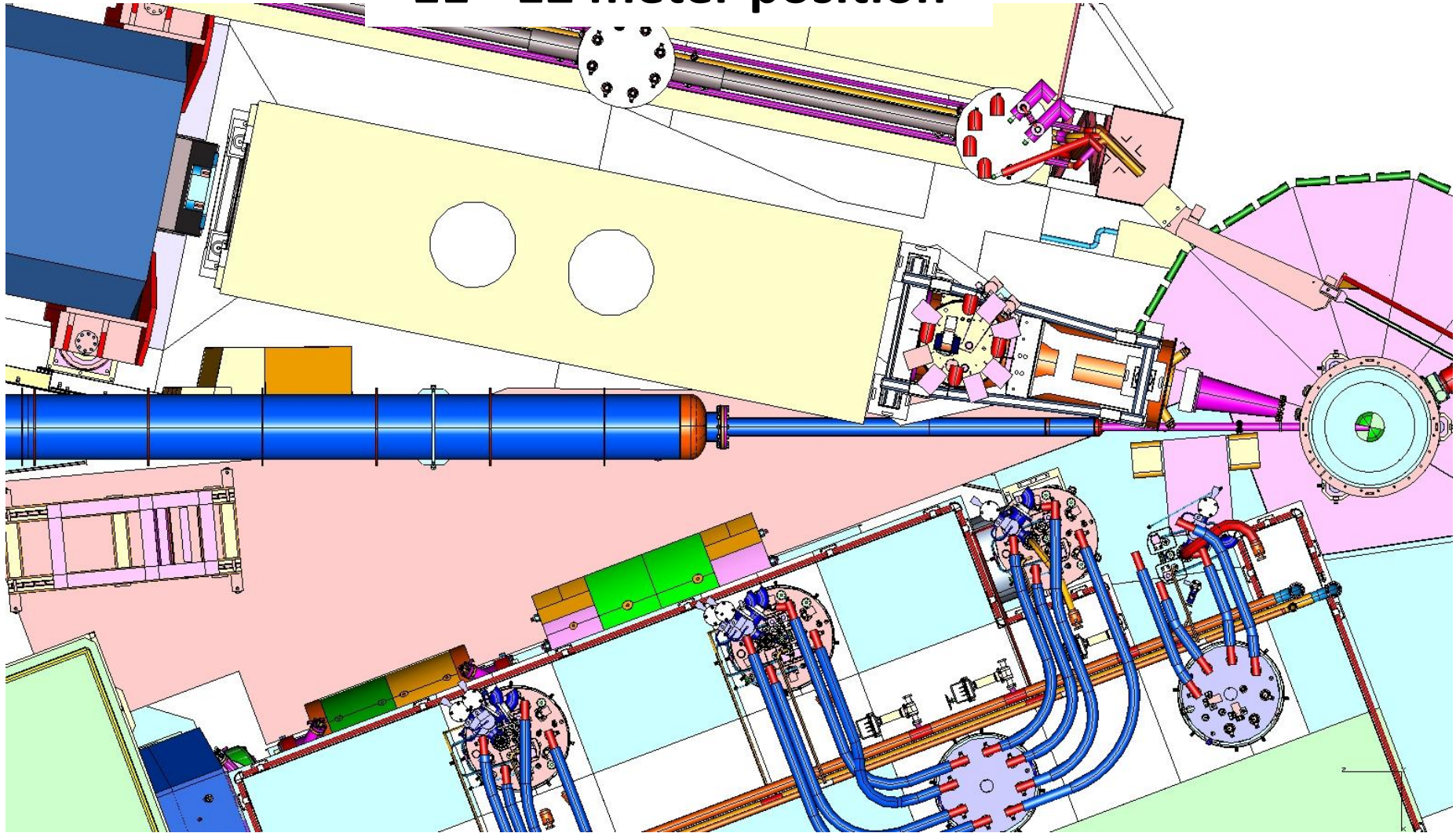
6 - 7 meter position



9 - 10 meter position



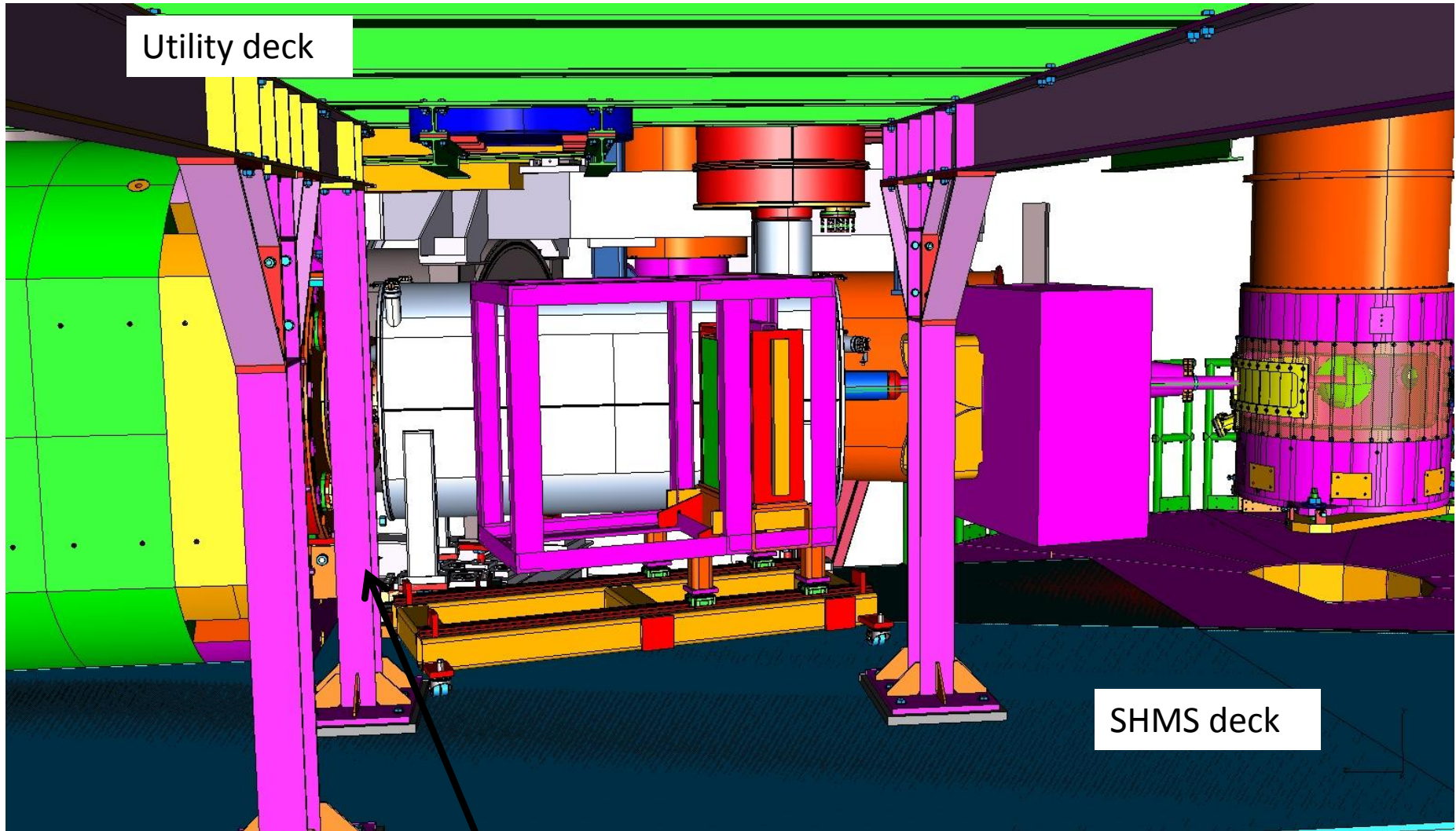
11 - 12 meter position



Large Angle Setup				SHMS Max 40 deg
Detector Position (meters)	Wish List (Deg.)	Detector Minimum Angle (Deg.)	SHMS Minimum Angle (Deg.)	Detector Max. (Deg.)
3.5 – 4.5	25.0	23.7	5.5	58.2

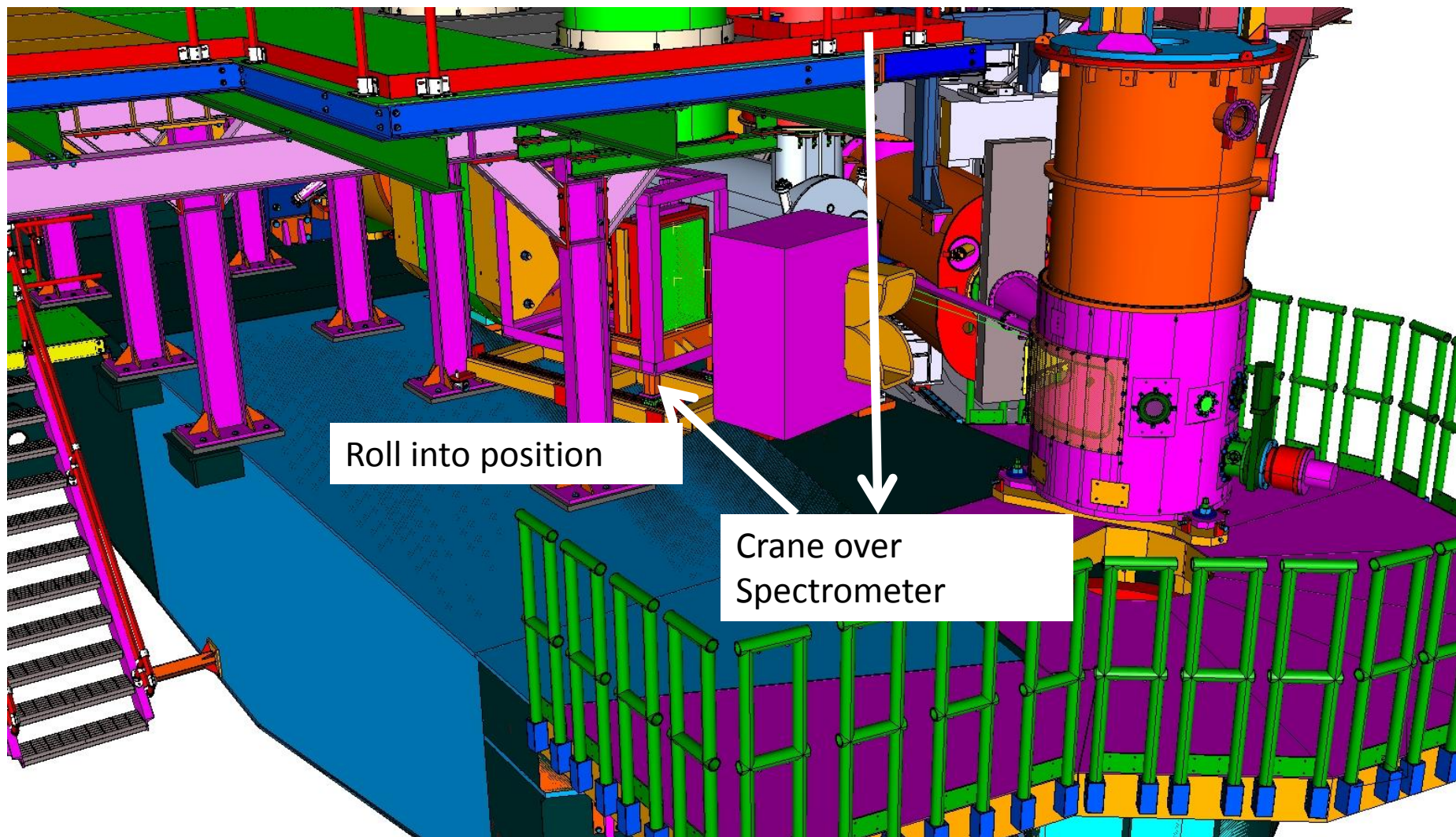
3.5 – 4.5 meter position

Utility deck



SHMS deck

Remove utility deck support



Roll into position

Crane over
Spectrometer

To Do List:

- Detector details, Frame, Base & Lifting frames, Plumbing, etc. etc. etc.
- Stress analysis for Base Frame & Lifting Frame.
- Detail the Cantilevered platform and how it is attached to SHMS. Stress analysis for platform.
- New Beamline, Low background, Small angles.
- Detector access? Ladder/Stairs, Fall protection.
- Utility routing? Data cables, water?
- Design Sweeping Magnet with low fringe fields.