Possible parasitic measurement during Fall GMp run

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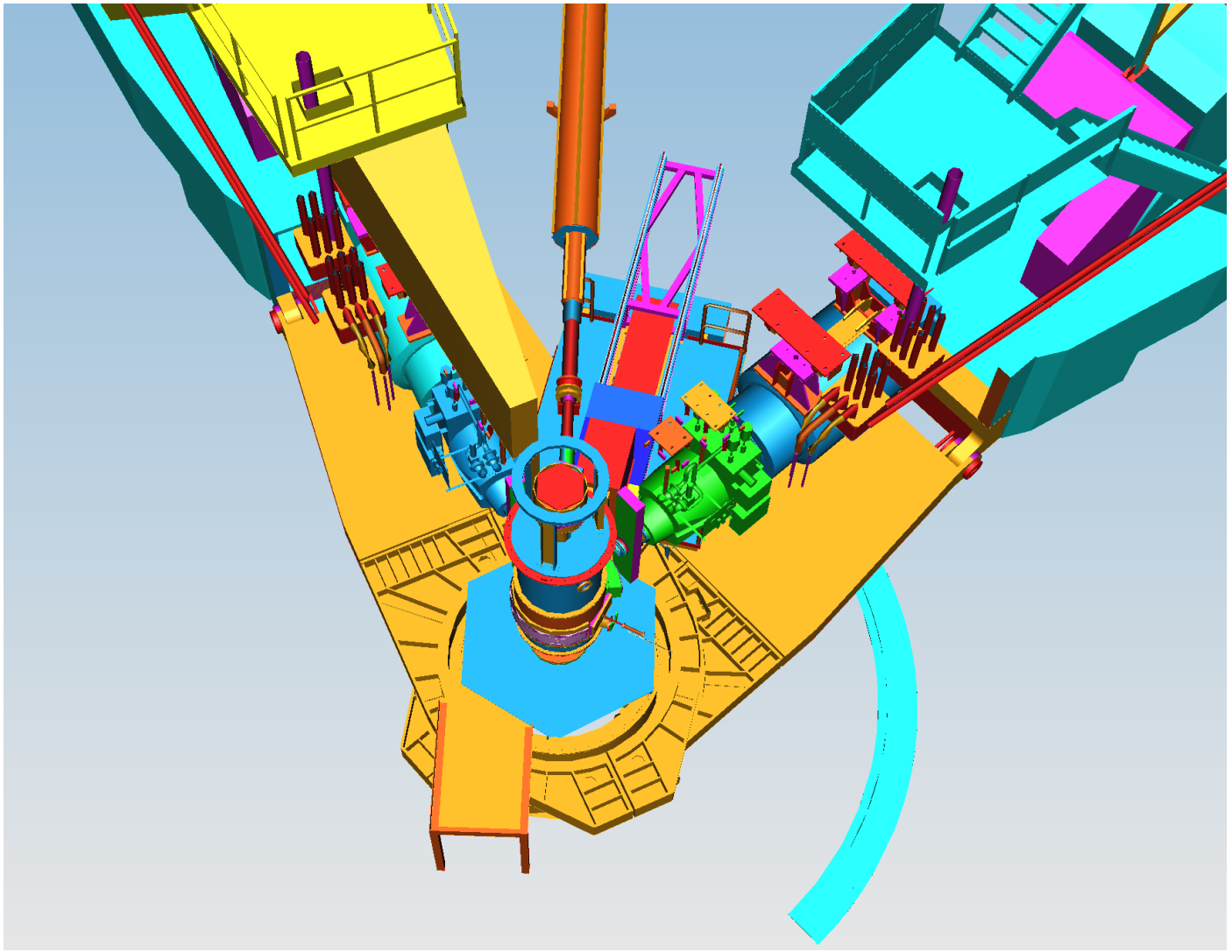
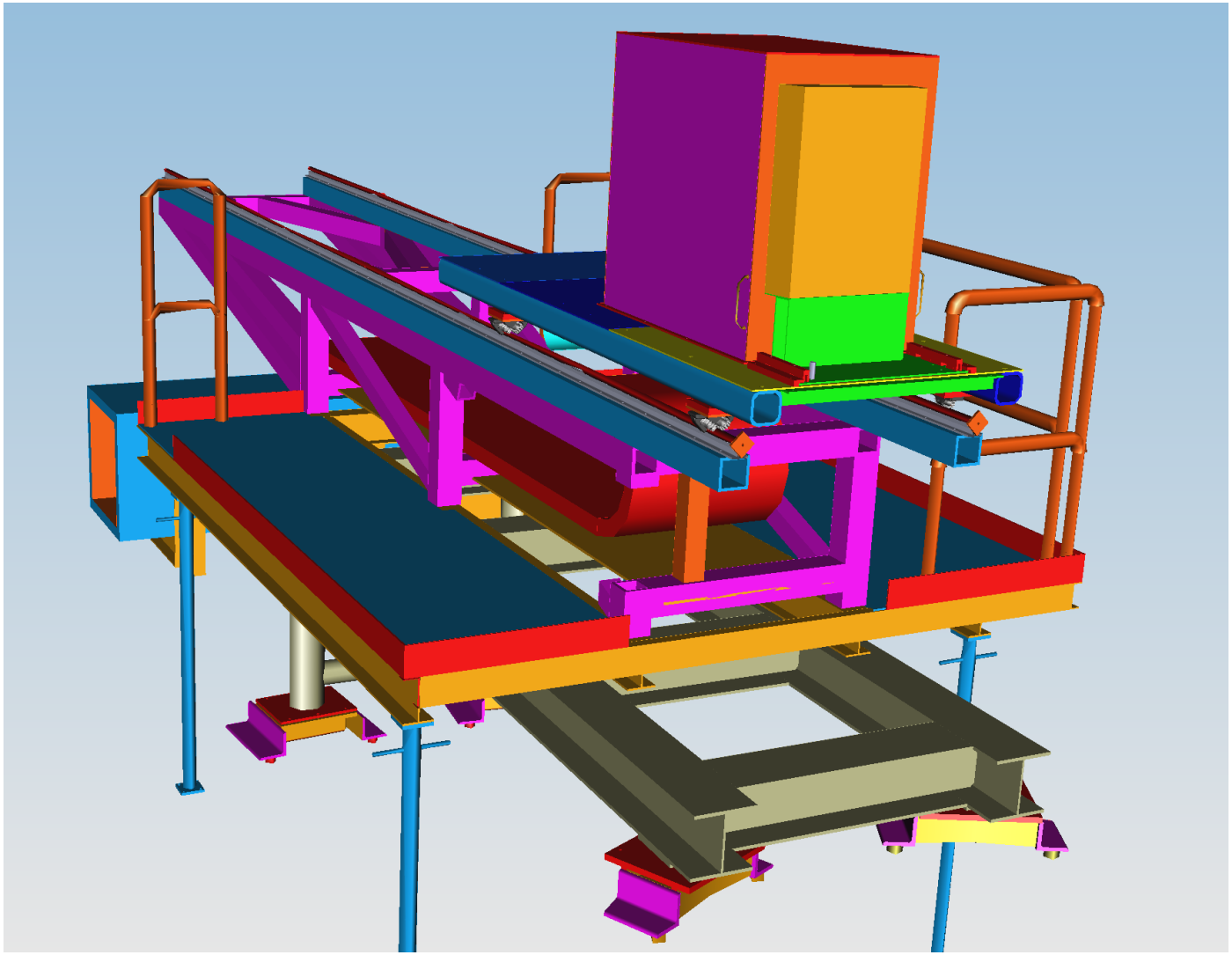
DVCS setup

- Stand has range from 10 to 16 degrees
- Z position from 1.5 m to 5.5 m
- Carrier about 2 m x 1m
- 208 channels of RG 213 signal going in HRS
- 208 HV channels
- DVCS electronics in spectrometer
  - 1 GHz waveform sampling 128 ns depth
  - Calorimeter trigger

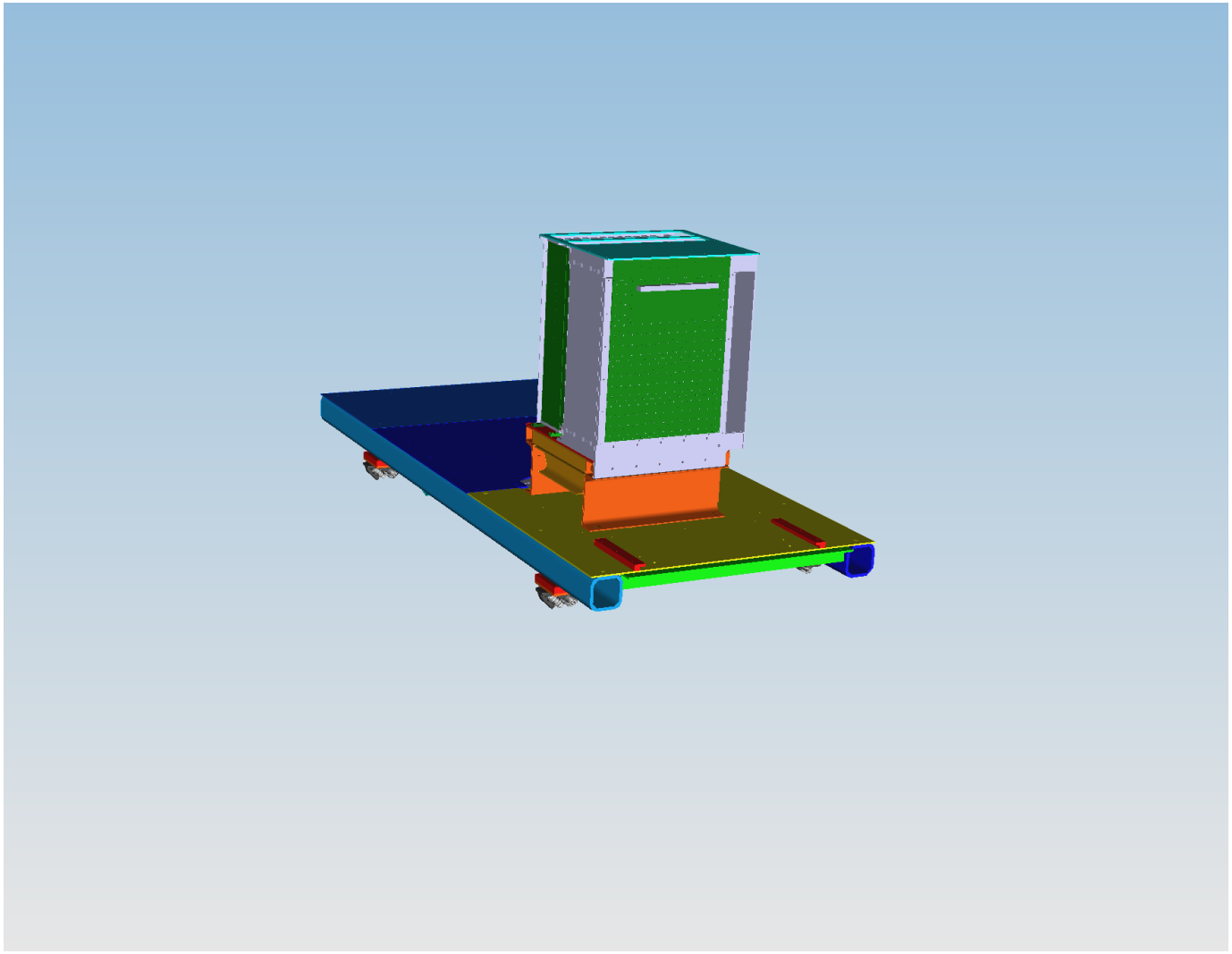
DVCS setup



DVCS arm



DVCS calorimeter box and carriage



GMp experiment

- Need high current up to 60 uA
- Two single arms DAQ
- Left HRS

- Right HRS : limite to about 42 degrees because of DVCS stand
- DVCS requested to run at under 25 uA when calorimeter is in place, can run high current when DVCS calorimeter is unstacked
- Most likely extended to Fall

GMp kinematics

E_e (GeV)	Q^2 $(\text{GeV})^2$	θ_e (deg)	E' (GeV)	ϵ	Rate (Hz)	Time (hours)	Events
6.6	7.0	35.4	2.869	0.62	7.45	0.7	40k
6.6	8.0	42.0	2.351	0.51	2.29	2.4	40k
6.6	9.0	52.0	1.782	0.37	0.48	11.6	40k
6.6	10.0	67.0	1.249	0.23	0.15	38.3	40k
8.8	9.0	29.3	4.000*	0.67	3.38	3.3	40k
8.8	10.0	33.3	3.465*	0.59	1.31	8.5	40k
8.8	11.0	38.0	2.945	0.51	0.53	10.5	40k
8.8	12.0	44.0	2.423	0.41	0.21	26.7	40k
8.8	13.0	53.0	1.859	0.30	0.06	67.4	28k
11.0	13.0	31.3	4.065*	0.58	0.36	21.2	28k
11.0	14.0	35.0	3.525*	0.50	0.17	39.0	24k
11.0	15.5	42.0	2.742	0.39	0.05	52.8	20k
11.0	17.5	58.0	1.689	0.21	0.01	271.4	16k
						517.8	

0.7+2.4+3.3+8.5+10.5+26.7+21.2+39 =112.3 hours = 5 PAC days = 10 days

Dedicated GMp run

- When DVCS is done, unstack calorimeter
- Most likely stand stays in place to save installation time
- GMp uses Left HRS for small angle measurement
- Most like Right HRS at smallest angle and DVCS stand at smallest angle 10 degrees

Electron Calorimeter irration test

- 10 degrees, current up to 60 uA
- Can reuse DVCS cables 208 channels and stack lead glass, need PMTs support
- Could reuse DVCS box, but not heat curing
- C200 ready next fall ?

GEM tests

- One plane or more in front of calorimeter
- Large or small GEM in front of HRS on sieve hold
- MPD in VME64X crate in spectrometer
- Test CODA integration, rate capability, DAQ capability, position resolution in high background, radiation hardness

GRINCH prototype test

- PID for GEM and ECAL
- Test rate capability and VETROC

HCAL

- Can be place in place of ECAL
- Or could look for coincidence with ECAL or HRS
- Can install FADC crate in LHRS for trigger testing

DAQ options

- Use DVCS DAQ
  - Good to look at accidental and background rate
- Use SBS DAQ
  - Good to test full scheme in realistic conditions
  - More involved in terms of installation

Drawback

- Only small angle available 10 to 16 degrees limited by RHRS

- No magnet : background and irradiation will be significantly higher

Conclusion

- Opportunity to take data in high background environment
  - Test detector capabilities
  - Benchmark Montecarlo
- Could test several detector components

- Could need significant effort depending how involved in the setup