

## DSG-GEM monthly meeting

**Date: January 24, 2022**

**Time: 1:30 pm – 2:30 pm**

*Attendees: John Boyd, Aaron Brown, Brian Eng, George Jacobs, Tyler Lemon, Marc McMullen, Anu Rathnayake, Holly Szumila-Vance, and Ezekiel Wertz*

### 1. Gas distribution systems

*Marc McMullen*

1. BigBite status
  - Gas distribution system running with eight channels
  - Flow and pressure monitoring online with WEDM webpage
  - Two Raspberry Pis used for monitoring flow and pressure
    - DSG is currently testing a modification to use a single Raspberry Pi with multiple I<sup>2</sup>C channels
2. Super BigBite status
  - Gas system running with 50 available channels with remote monitoring with WEDM
  - SBS will be used to test the pressure monitoring using a single Raspberry Pi
3. DSG is developing a model of both systems using NX 12 to help with installation planning and changes

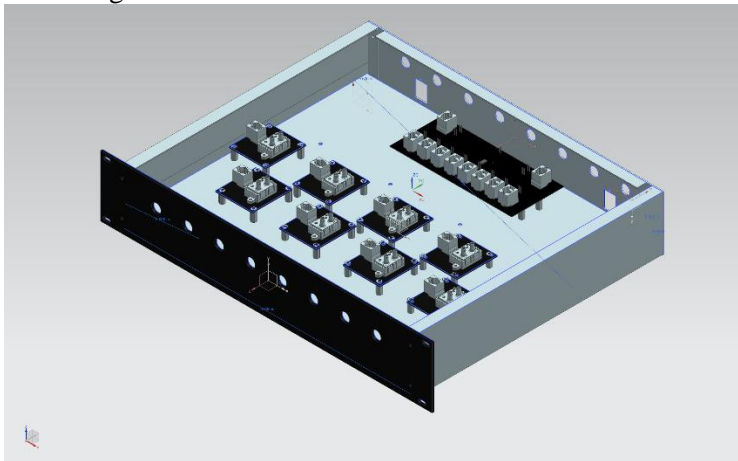


Figure 1. Gas Flow Sensor chassis model in NX 12

### 2. BigBite

*Holly Szumila-Vance and Ezekiel Wertz*

1. Two INFN modules were replaced with UVA (UV) modules in December
  - No changes to the gas system components were needed as the new layers require less flow (375 LPM vs. ~ 500 LPM) on channels 7 and 8
2. The issue of spare components was discussed
  - Gas flow readout component spares exist from the exhaust system components, which were not used
  - No in-hall gas distribution system components have malfunctioned

### 3. Super BigBite

*John Boyd, Holly Szumila-Vance, and Anu Rathnayake*

1. The current plan is to move the SBS to the hall for installation in April or May
2. Two INFN layers will be installed in March while the detector is in testing (EEL 125)
  - These layers are currently under test and debug
3. Currently, a 1/4" gas line supplies the regulator from the supply tanks
  - The gas lines are ~20' long
  - During hall operations, the gas line will be increased to 1/2"
    - The gas is supplied from the gas shed
4. Hall A is working on reducing the frequency of bottle exchange by putting multiple bottles online using a manifold
  - An [estimate of gas consumption](#) was conducted
  - The current setup uses eight UVA layers
    - At 2.5 volume exchanges per hour, usage is 0.8 bottles of N<sub>2</sub> or 0.7 bottles of premix Ar/CO<sub>2</sub> per day
  - The operational setup will use 10 UVA layers and two INFN layers
    - Expected usage of 2.2 bottles of N<sub>2</sub> or 1.9 bottles of premix

### 4. Support systems status

*Anu Rathnayake and Ezekiel Wertz*

1. SBS is currently taking data in EEL 125 using the hall operational power and DAQ crates
  - These crates will move with the detector to the hall in April or May
2. Detector safety was discussed
  - The gas supply and mixing system is monitored by Hall A using a binary gas analyzer
  - Shifters notify on-call staff if the supply pressure is out of specification