There is negligible chance to come to JLab from Italy before end of 2020 → we are going/forced to return INFN travel funding for this year.

Testing and installation activities at JLab need to be carried on by local/US collaborators.

We will support remotely as much as possible (and carry on / finalize activities in Italy).
5 layers integrated and first tests performed

- Scintillators
- GEM J4
- GEM J2
- GEM J0
- GEM J3
- GEM J4

HDMI cable

Fasten system

Late Sep/2019

GEM setup at JLab

Nov/19: GEM can slide out for maintenance
Latest actions

From 5th of Aug N² gas is flowing in 4 GEM layers (chambers)

optical link transfer speed
among other, they are try to solve/mitigate issue in SSP-MPD

Latest actions

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- From 5th of Aug N² gas is flowing in 4 GEM layers (chambers)

David Armstrong and Ezekiel Wertz agreed to support the GEM tracker activity; their support will be fundamental → thanks to Nilanga and Bogdan

- They need permission to work in the Test Lab / GEM Room area!
- Ezekiel and David need to familiarize with the system;
- Ezekiel has tracked/refreshed the GEM BigBite frame design from Robin/Derek and is going to figure out the status of the new frame version

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High-level tasks for BigBite

- Install cable trays (one chamber has the new metallic tray and can be used as reference)
- Fix annoying DAQ/Electronics issues that prevent to take continuous cosmic data (likely one MPD has some trouble)
- Rump HV up and do cosmic tests to check stability
- Finalize procedure for moving GEM chambers to TED
- Finalize GEM BigBite Frame and ancillary components
- Take continuous cosmic data (likely one MPD has some trouble)
- Fix annoying DAQ/Electronics issues that prevent to take continuous cosmic data (can be used as reference)
- Replace plastic cable trays (one chamber has the new metallic tray)

Installation
High-level remaining tasks for PR detector

Installation (specific of the 2 INFN CEMs)

Installation of the Bigbite integration

Define installation procedure and test it (possibly detector frame)

Verify compatibility of CEM layer with holding PR modules expected to be installed in Bigbite

... need space in cosmic tower: some source (90Sr radionactive)

Do some cosmic test (and/or by 90Sr radioactive)

Select modules and integrate the 6th CEM layer

Verify compatibility of GEM layer with holding PR detector frame

•

Assemble the very last module in Italy and test it (if successful we will have 4 candidate modules for last CEM layer)

31/Aug/2020

SBS - Front Tracker CEM
GEM Activity in Italy till end 2020

- test of the last GEM foil in Catania - completed
- setup a drying oven (sort of) for ultrasonic cleaning test - completed
- test of the last GEM foil in Catania - completed
- assemble an additional GEM module (we need to upgrade air conditioning in clean room and change some assembling procedure in accordance to new COVID – regulations), likely end of September
- assemble an additional GEM module (we need to upgrade air conditioning in clean room and change some assembling procedure in accordance to new COVID – regulations), likely end of October
- remote support the local-Jlab activities (included electronics/DAQ)
- support U/V chambers production
- continue software developments (microscopic simulation, firmware data suppression, Quantum Computing based alignment)
- integrate the last layer (6th); likely end of October
- test assembled module and likely send to JLab together with one or two modules we are trying to cure in Rome. They can be used to integrate the last layer (6th); likely end of October

31/Aug/2020
SBS - Front Tracker GEM
• GEM user manual (sort of):
  https://docs.google.com/document/d/1QWbZPQZj9sGWcWRkJDHlxRwA0EdLe8kNKTMDK7Ts/edit?usp=sharing
• Cosmic and installation test Run Log:
  https://pandora.infn.it/public/cd5c37
• Electronics MPD Firmware:
  https://github.com/musico964/Fpga_4_Fiber
• Also some entries in the SBS wiki:
  https://hallaweb.jlab.org/dvcslog/SBS/
• BigBite installation procedure (version 1):
  https://pandora.infn.it/public/143c29

Links to main GEM documentation