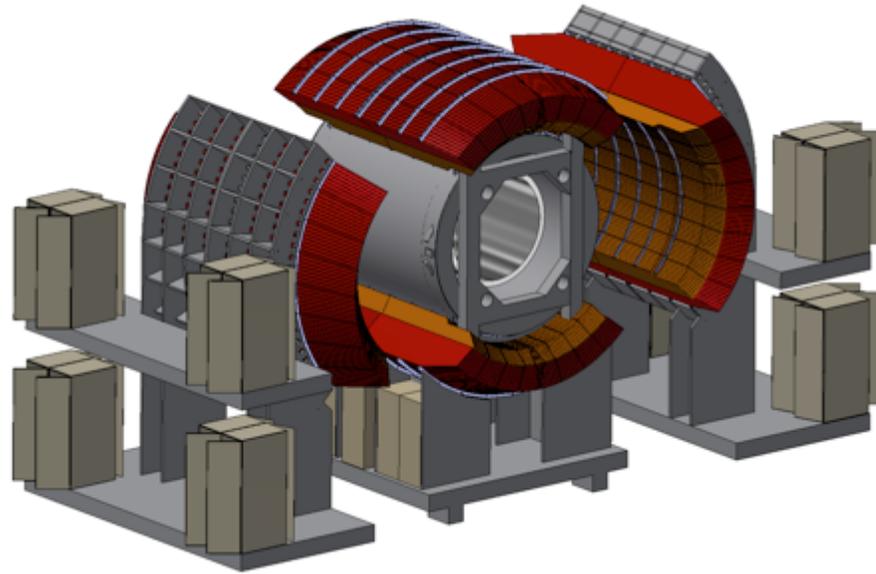
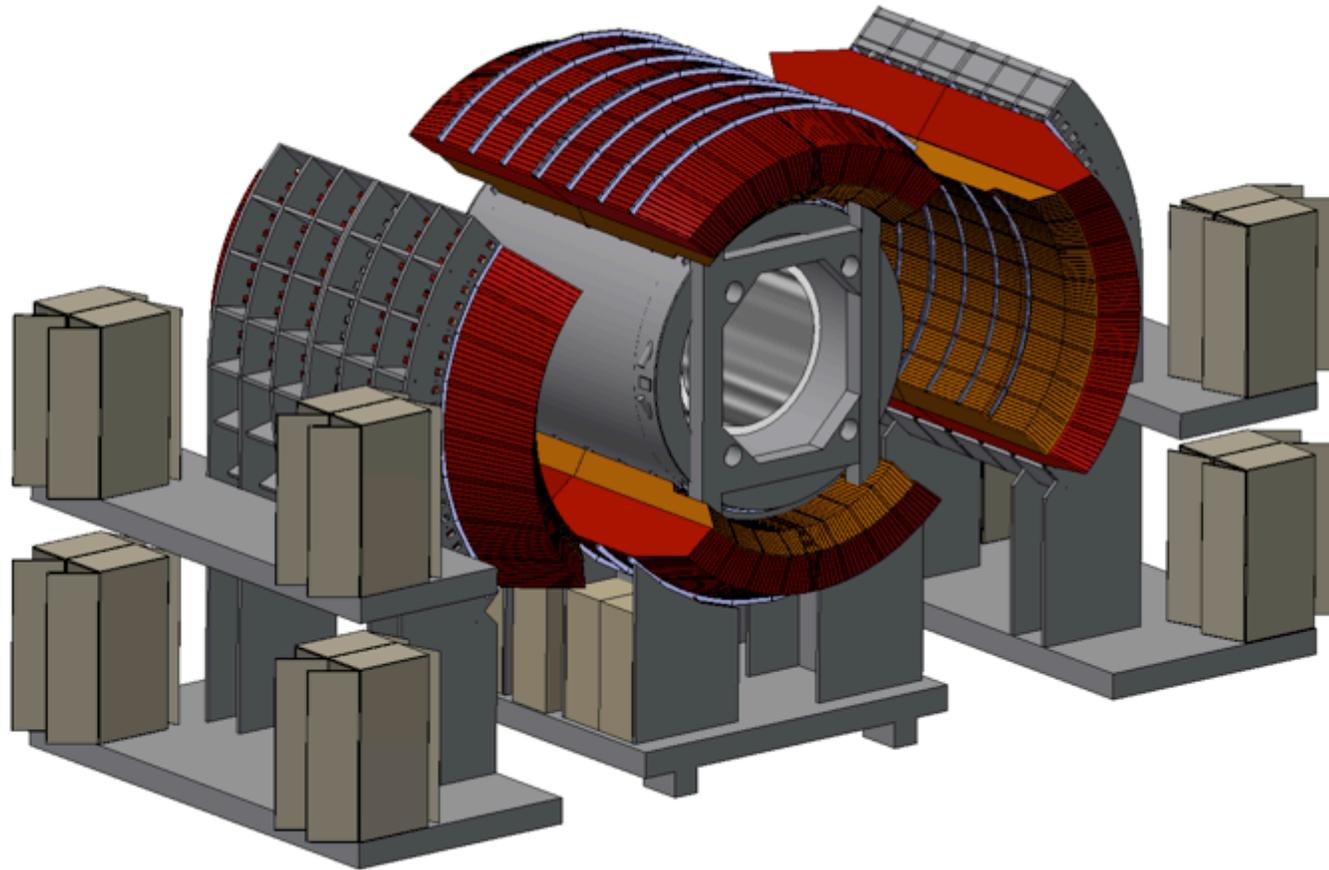


# sPHENIX Project Engineering



D. Lynch, R. Ruggiero  
May 15, 2014

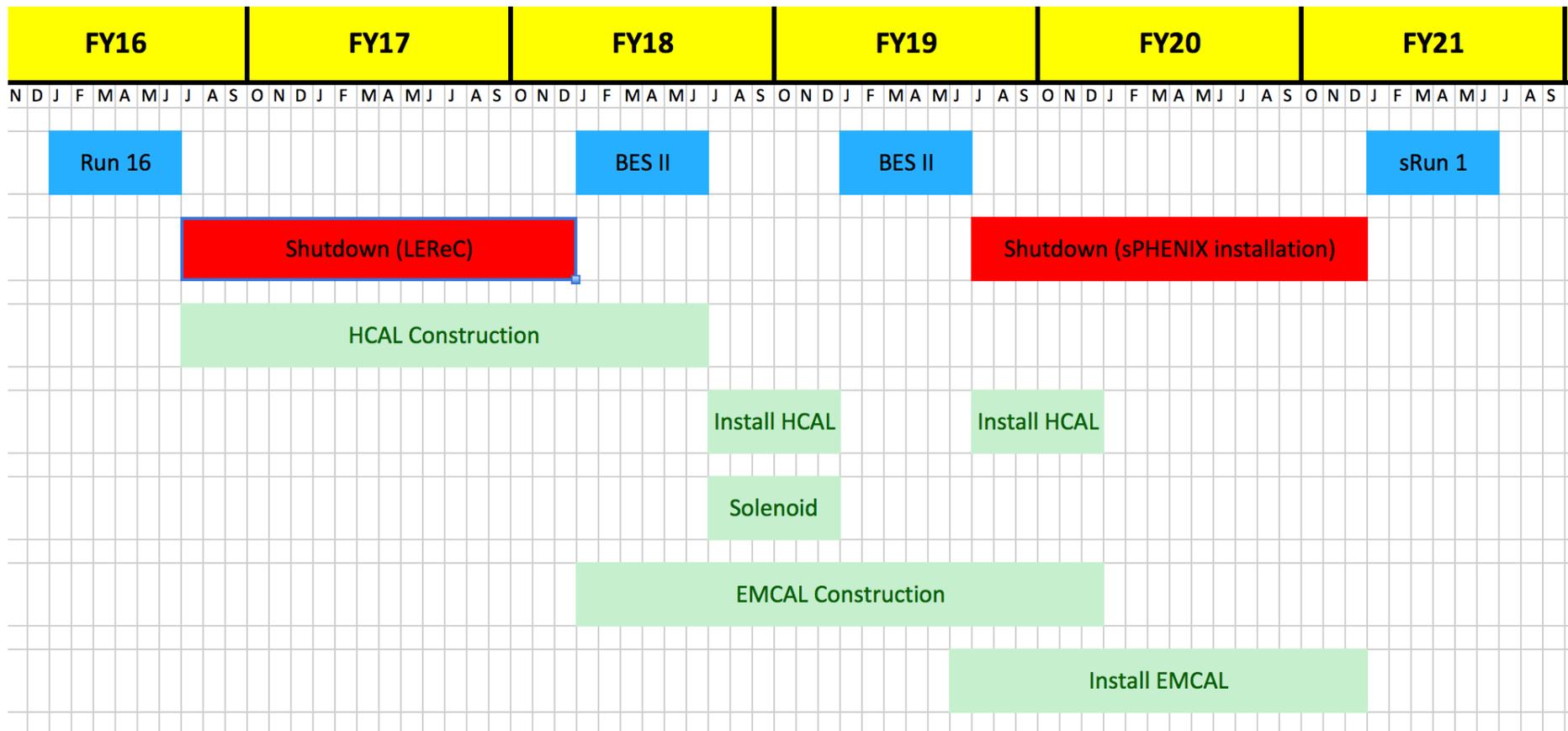
# sPHENIX Concept



May 15, 2014

sPHENIX Mechanical Design

# sPHENIX schedule



Desirable to have whole HCAL installed prior to  
 Run-19

May 15, 2014

sPHENIX Mechanical Design

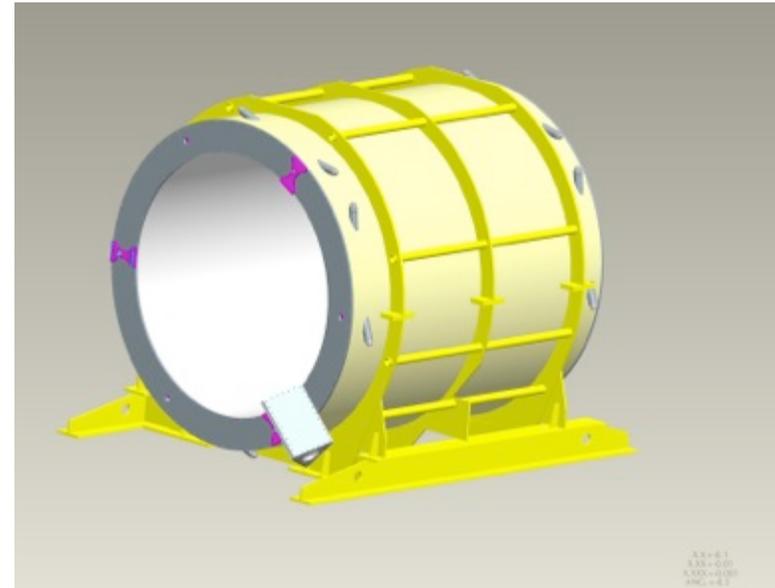
# sPHENIX activities

- March 10-12 BNL Review
- March 28 Final BNL Review report
- March 31-April 4 Livermore Workfest
- April 2 SMD/CAD SLAC visit on solenoid
- April 24 Electronics meeting at Nevis
- April 24-25 NSAC LRP schedule announced
- May 1 Forward sPHENIX whitepaper submitted to BNL
- May 2 Science review scheduled
- May 12 Today's first PMG meeting
- June 3 PHENIX science review rehearsal
- June 10 BNL science review
- July 1-2 DOE science review
- April 2015 LRP Resolution Meeting
- October 2015 Final LRP

May 15, 2014

## Magnet (BABAR) (Magnet Div)

- Acquire rights Done
- Evaluate Transport 5/1/14
- Design Transport fixtures 5/1/14
- Fabricate Transport Fixtures 6/1/14
- Evaluate BNL test facility requirements 6/1/14
- Prepare test facility 8/1/14
- Install Transport fixtures 8/1/14
- Transport to BNL 9/1/14
- Install in test facility 10/1/14
- Design tests/test equipment 10/1/14
- Fabricate/procure test equipment 1/1/15
- Run tests 6/1/15
- Design Magnet modifications 12/1/14
- Fabricate magnet modifications 6/1/15
- Install magnet modifications 8/1/15
- Evaluate final installation 9/1/15
- Design installation support equipment 12/31/2016
- Fabricate/procure support equipment 7/1/2018
- Transport to IR 7/1/2018
- Install 10/31/2019
- Test 11/31/2019
- Commission 12/31/2019



*Meeting next week with Mag Div. to finalize magnet transportation*

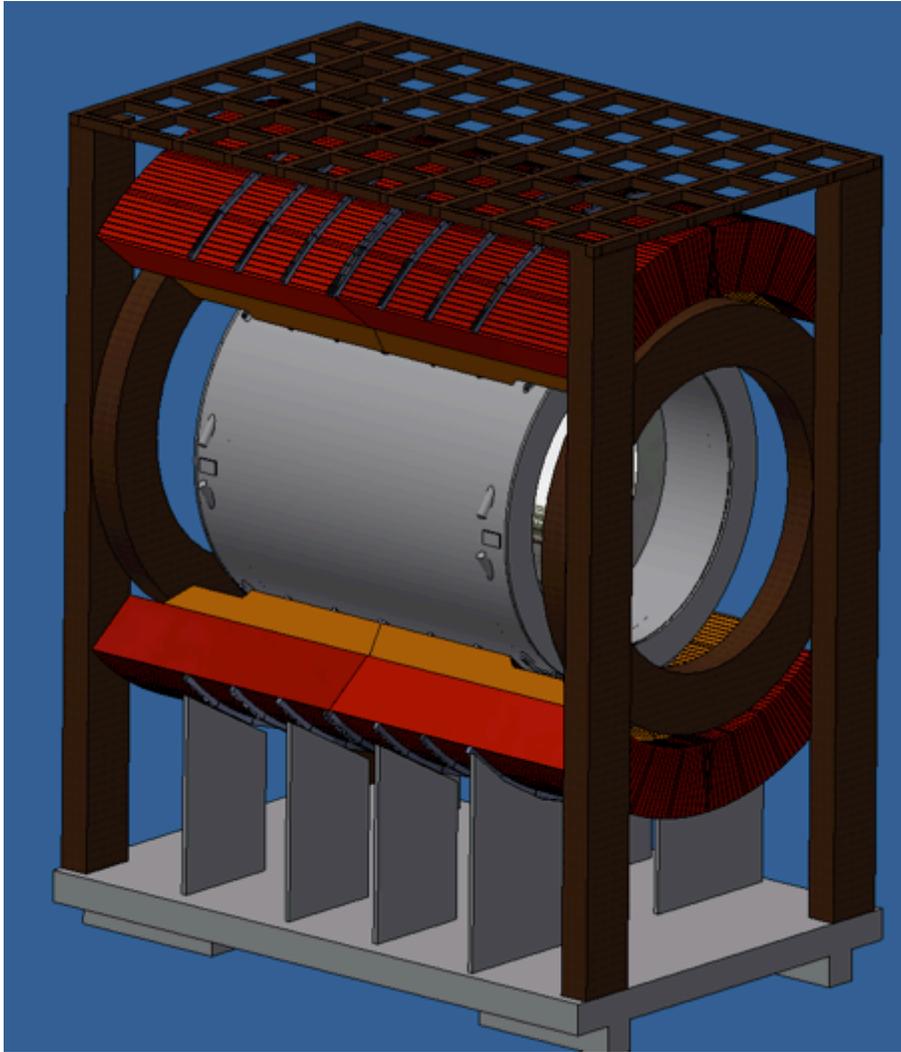
May 15, 2014

sPHENIX Mechanical Design

sPHENIX Engineering:

Major Subsystems/Subtopics:

- Magnet (BABAR) (Magnet Div) start 2/1/14 - 12/31/2018
- Hadronic Calorimeter (HCAL) (PHENIX) start 2/1/14 - 12/31/2020
- EM Calorimeter EMCal (PHENIX) start 2/1/14 - 12/31/2020
- VTX (RIKEN) start 2/1/14 - 12/31/2020
- DIRC (?) start ? - 12/31/2020
- VTX additional layers (RIKEN) start ? - 12/31/2020
- Carriage Support structure (PHENIX) start 2/1/14 - 12/31/2020
- Readout Electronics (PHENIX) start 2/1/14 - 12/31/2020
- Infrastructure (PHENIX ++)
  - Electrical Power Services (PHENIX) start ? - 12/31/2017
  - Instrumentation Support start ? - 12/31/2020  
(Signal trays & Racks) (PHENIX)
  - Cryo Services (CAD) start 2/1/14 – 8/1/2018
  - Cooling water (CAD) start ? - 12/31/2017
  - Safety Systems (PHENIX ) start ? - 12/31/2020
  - Work Platforms and Access/Egress start ? - 12/31/2017  
Structures (CAD)
  - HVAC (CAD) start ? - 12/31/2017
  - PHENIX Decommissioning start ? - 6/30/2017  
(CAD, PHENIX)
- System Integration (PHENIX) start 2/1/14 - 12/31/2020
- Testing (PHENIX) start 2/1/14 - 12/31/2020
- Installation (PHENIX, CAD) start 2/1/14 - 12/31/2020
- Commissioning (PHENIX) start 2/1/14 - 12/31/2020



Alternate Central Pedestal  
support Concept

## Hadronic Calorimeter (HCAL) (PHENIX)

- Conceptual design options 4/1-5/1/14
- tradeoff studies innie vs outie including cost estimates 5/1-11/1/14
- initial prototype(s) 11/1-12/1/14
- final design concept 3/1/15
- production estimates 4/1/15
- Production prototype design/drawings (single module) 7/1/15
- production prototype tools, techniques, procedures and fixtures 9/1/15
- production prototype test planning 10/1/15
- production prototype fabrication & procurement 11/1/15
- production prototype test(s) 2/1/16
- assembly final design 4/1/16
- assembly tools, techniques, procedures and fixtures 6/1/16
- assembly fabrication & procurement 12/1/16
- assembly planning 12/1/16
- final assembly of all modules 12/1/17-12/19
- acceptance/qualification testing 2/1/17-1/1/20

EM Calorimeter EMCal (PHENIX) (Need level 2 and engineering Manager)

- Conceptual design options 5/1/14
- tradeoff studies innie vs outie including cost estimates 11/1/14
- initial prototype(s) 2/1/15
- final design concept 1/1/16
- production estimates 1/12/16
- Production prototype design/drawings (single module) 5/1/16
- production prototype tools, techniques, procedures and fixtures 8/1/16
- production prototype test planning 8/1/16
- production prototype fabrication & procurement 12/1/16
- production prototype test(s) 2/1/17
- assembly final design 5/1/17
- assembly tools, techniques, procedures and fixtures 8/1/17
- assembly fabrication & procurement 1/1/18
- assembly planning 1/1/18
- final assembly of all modules 1/1/20
- acceptance/qualification testing 1/1/20

## VTX (RIKEN)

### Conceptual design options

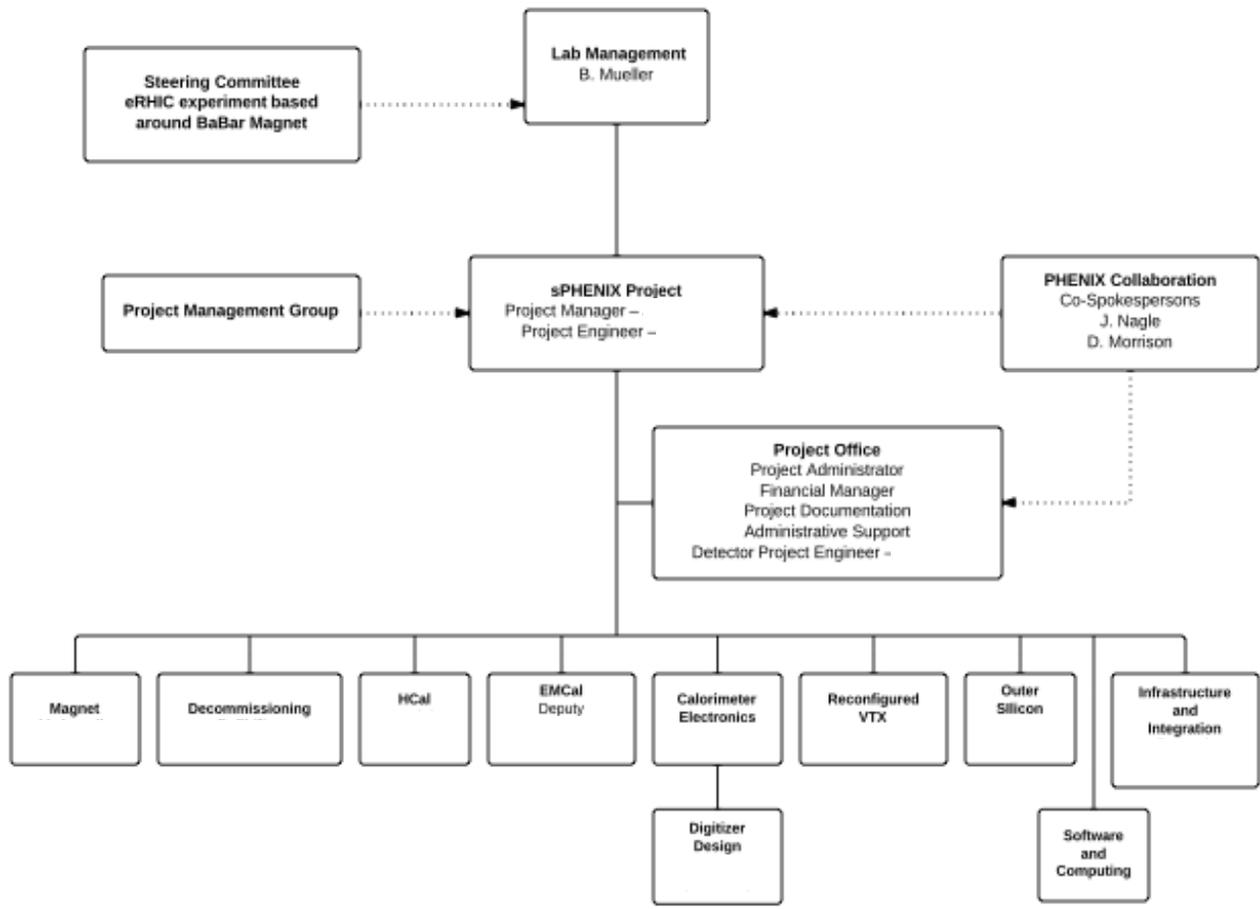
- tradeoff studies innie vs outie including cost estimates
- initial prototype(s)
- final design concept
- production estimates
- Production prototype design/drawings (single module)
- production prototype tools, techniques, procedures and fixtures
- production prototype test planning
- production prototype fabrication & procurement
- production prototype test(s)
- assembly final design
- assembly tools, techniques, procedures and fixtures
- assembly fabrication & procurement
- assembly planning
- final assembly of all modules 1/1/2020
- acceptance/qualification testing 1/1/2020

## Infrastructure: SULI Student this summer task plan:

*The efforts to be undertaken by the SULI summer student working on this project include planning for the logistics involved, analysis and design documentation of existing PHENIX infrastructure and initial layouts for sPHENIX. Student will work closely with PHENIX and RHIC engineers and designers to achieve these goals.*

## PHENIX Decommissioning: SULI Student this summer task plan:

*The efforts to be undertaken by the SULI summer student working on this project include organizing and planning work procedures for decommissioning the various PHENIX detectors and related support subsystems .*



May 13, 2014