BarrelTOF/SciTil TDR Status and Remaining tasks

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TDR Status

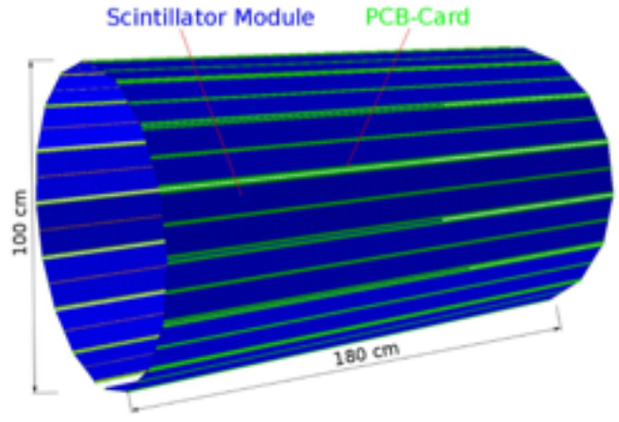
Technical Design Report for the:

$\overline{\text{P}}$ANDA Barrel Time-of-Flight

(AntiProton Annihilations at Darmstadt)

Strong Interaction Studies with Antiprotons

$\overline{\text{P}}$ANDA Collaboration September 8, 2016



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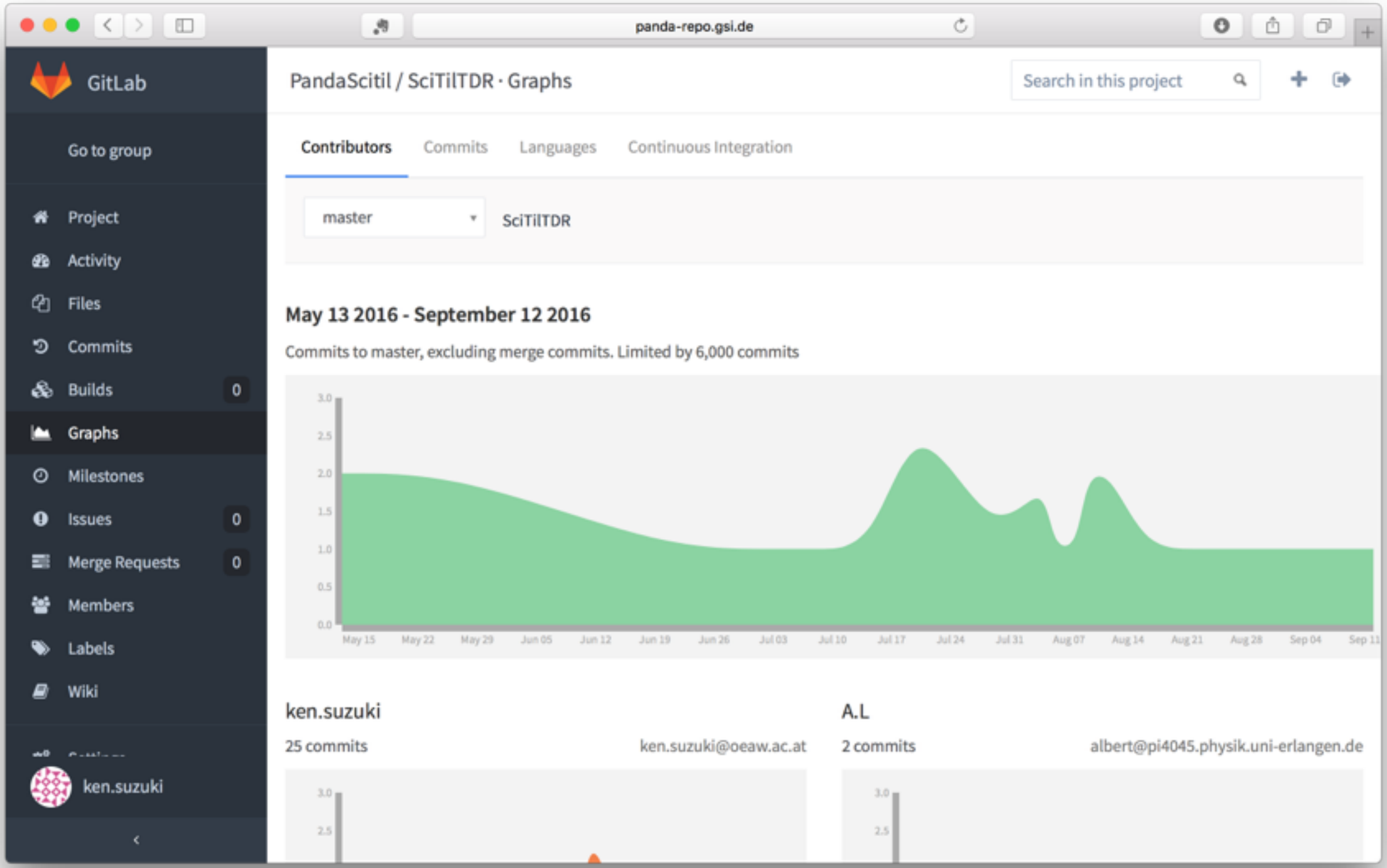
Repository

- gitlab on panda-repo.gsi.de
  - /SciTilTDR
- Dropbox
- used locally by Viennese



29 commits, 78 pages, 1000 MB(??)

Chapter 1: Executive summary

- A very concise summary
- will be written later

Chapter 2: The PANDA Experiment

- general introduction of the PANDA experiment
- essentially common with other PANDA TDR
- currently a copy from B-DIRC
- will be slightly tailored

Chapter 3: Requirements

- summary of the Proposal and other earlier works:
  - “Motivation of the Barrel Time-of-Flight..” by A. Gillitzer et al.
  - “Particle Identification at PANDA” by G. Schepers et al.
  - “Influence of Event Timing on Event Building” by K. Götzen
  - Radiation map study by K. Makonyi

Chapter 3: Requirements

- §3.1: Primary requirements
  - PID at low p, software trigger (Day-1), Event sorting, Pattern matching, Material budget, EMC preshower detection
- §3.2: Secondary requirements
  - Time resolution (PID, Eff.), Position resolution
- §3.3: Technical requirements
  - Mechanical, radiation, DAQ, Electrical
- Contexts are there. Need to be rewritten

Chapter 4: Design

- §4.1: Overall design: ****
- §4.2: Scintillator tile module: ***
- §4.3: Super module: ***
- §4.4: Readout electronics: *
- §4.5: Data acquisition: *
- §4.6: Slow control: **
- §4.7: Monitoring: **
- §4.8: Software: ****

*****: complete
****: text to be refined, checked
***: work in progress
**: some text and an idea is rather clear
*: no text but at least idea is rather clear
: zero

Chapter 5: Performance Simulation

- §5.1: Efficiency: ****
- §5.2: Online t0: ****
- §5.3: Event sorting: *
- §5.4: Pattern matching: **
- §5.5: Relative TOF: ****
- §5.6: TOF based PID: ****
- §5.7: EMC preshower detection and energy compensation: **

*****: complete
****: text to be refined, checked
***: work in progress
**: some text and an idea is rather clear
*: no text but at least idea is rather clear
: zero

Chapter 6: Performance Evaluation of Prototypes

- §6.1: Single tile: ****
- §6.2: Rate capability: ****
- §6.3: Super module: ****
- §6.4: Radiation hardness: ***

*****: complete
****: text to be refined, checked
***: work in progress
**: some text and an idea is rather clear
*: no text but at least idea is rather clear
: zero

Chapter 7: Project Management

- §7.1: Collaboration structure: **
  - Mainz? MePhI?
- §7.2: Schedule: **
- §7.3: Cost: **
- §7.4: Manpower: *
- §7.5: Safety: *

*****: complete
****: text to be refined, checked
***: work in progress
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*: no text but at least idea is rather clear
: zero

Summary Outlook

- TDR great progress since the last CM. It's getting in shape but it needs a bit more work
- Thanks once again for all who contributed to the TDR
- To be done:
  - DAQ, FEE, slow control
  - organisation
  - EMC preshower