

Phys/PubCom session the agenda

1. General announcements
2. Physics matters: PANDA @ “phase one” (P1)
 - ✓ “Phase-one” document layout and procedure
 - ✓ Status & perspectives of benchmark highlights
 - ✓ Time line, assignments, and next steps towards P1 paper
3. Publication matters: addendum 9
 - ✓ Concise publication rules: status & procedure
4. A.O.B.

Announcements

1. Thanks to Paola and Marc for past coordination efforts
2. Proposed change in “charmonium” PWG
 - ✓ Elisa Fioravanti stepped down as convenor
 - ✓ “Ad-interim” solution by Marc Pelizaues and Frank Nerling
 - ✓ Thanks to Elisa for all her work and to Marc and Frank for helping!
3. Publication Committee
 - ✓ This CM: new elections
 - ✓ Thx to Albrecht, Elisabetta, Gianluigi, Klaus, Karin for their services
4. Second JSC held on 14/15th of November 2016

Joint Scientific Council (JSC) progress meeting

- 14-15th of November: JSC meeting at GSI
 - ✓ Focus on plans from **phase-zero** to phase-one of each FAIR pillar
 - ✓ Questionnaires as input (send to PhysCom)
 - ✓ Case presented by each pillar with closed discussion sessions
 - ✓ *JSC in general pleased with progress of all pillars!*
 - ✓ Next JSC 19-20th of June 2017

PANDA phase-zero

Already 2018++

PANDA equipment/analysis tools will be used for physics

- a) Straw Trackers at HADES
Excited Hyperon Transition Formfactors
Cracow, Juelich, Orsay, Uppsala, +TRK
- b) Backward PWO Calorimeter at MAMI
Magnetic Moment of the $\Delta(1232)$, $e\text{-}\mu$ universality, multi π^0 prod.
Mainz Uni and HIM, +EMC
- c) Develop/apply PWA tools at e.g. Jlab, BES-III
Meson spectroscopy with (non)exotic quantum numbers
Bochum, GSI, Mainz +PhysAna

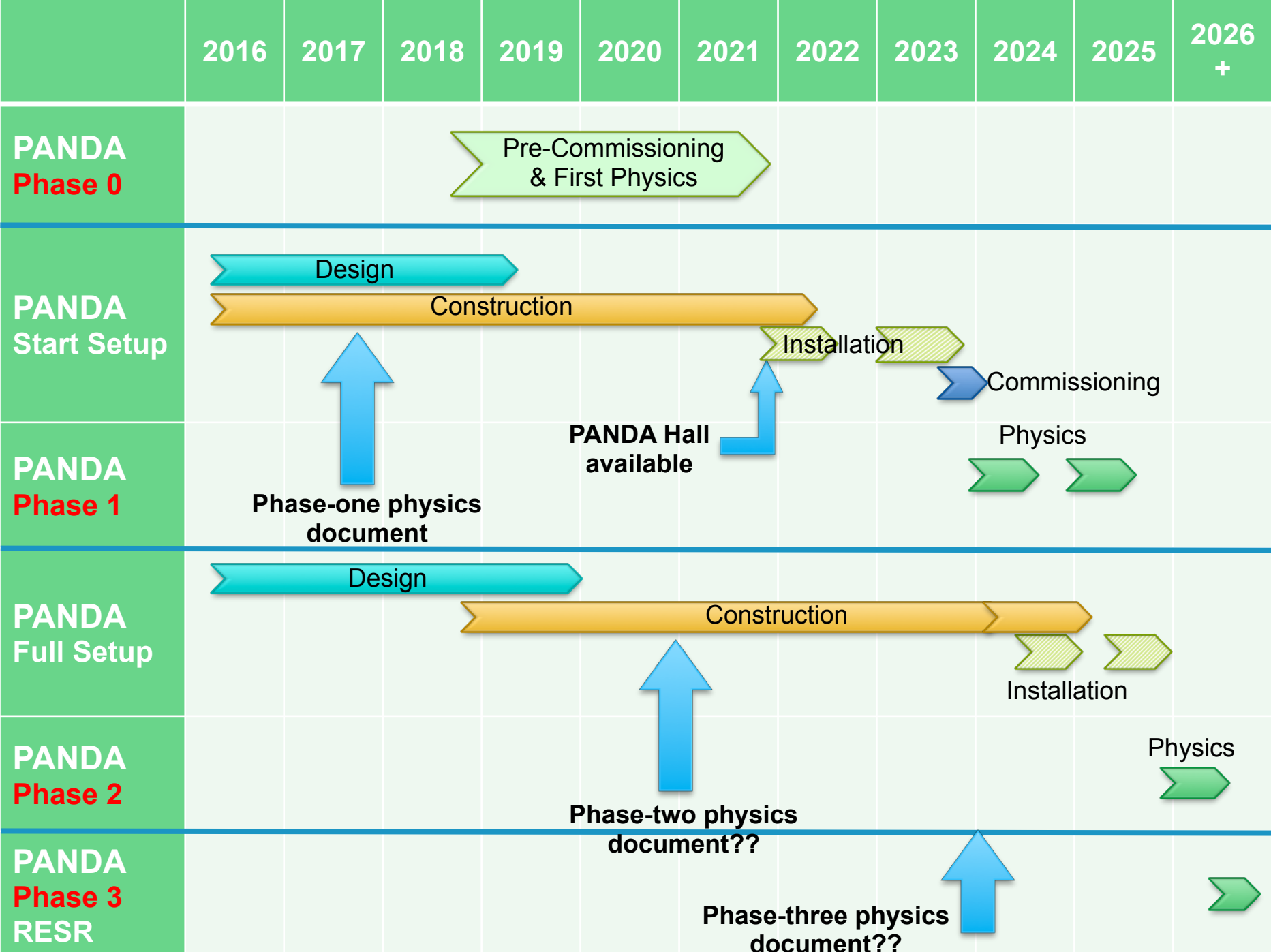
Aspect strongly emphasized by JSC!!!

Physics perspectives with PANDA at “phase one” (P1)

towards a comprehensive
highlight & feasibility document

Why now a P1 physics paper?

- ✓ Convey strong message to the outside:
alive and excellent program at “day one”
- ✓ Follow-up of physics performance booklet
- ✓ Sharpen and prioritize our “day-one” goals
- ✓ Stimulus for internal activities



2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 +

PANDA Phase 0

Pre-Commissioning & First Physics

PANDA Start Setup

Design

Construction

Installation

Commissioning

PANDA Phase 1

Phase-one physics document

PANDA Hall available

Physics

PANDA Full Setup

Design

Construction

Installation

PANDA Phase 2

Physics

PANDA Phase 3 RESR

Phase-two physics document??

Phase-three physics document??

Physics

Spirit of P1 paper

- ✓ “*physics-driven setup*”, **not** “*setup-driven physics*”
- ✓ Sell program as as a *whole*, **not** as a stamp collection
- ✓ Emphasis on *the impact* of our physics program
- ✓ Detailed feasibility studies of few *flagships*,
e.g. focus on *quality* and less on quantity
- ✓ Bottom-up approach

Proposed outline of P1 paper

“Perspectives for the first period of data taking with PANDA”

1. Introduction and motivation
2. The antiproton facility at “phase one”
3. Physics potential of PANDA at “phase one”
4. Summary and long-term perspectives

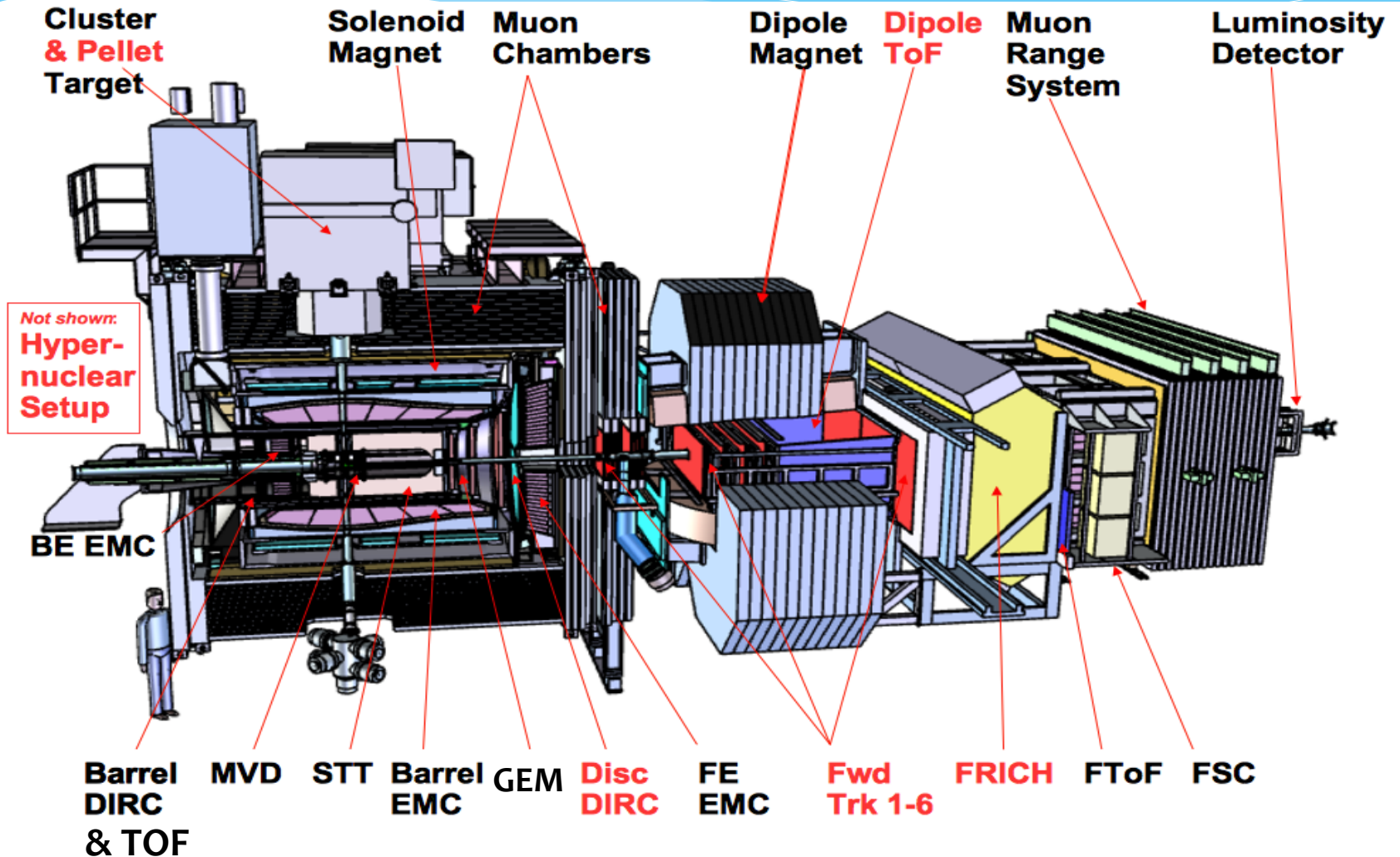
1. Introduction and motivation

1. Underlying physics questions addressed by PANDA
2. Today's state-of-the-art: theory and experiment
3. Opportunities using antiprotons
4. Complementarity and competitiveness
5. Staging of PANDA program, motivation “phase one”

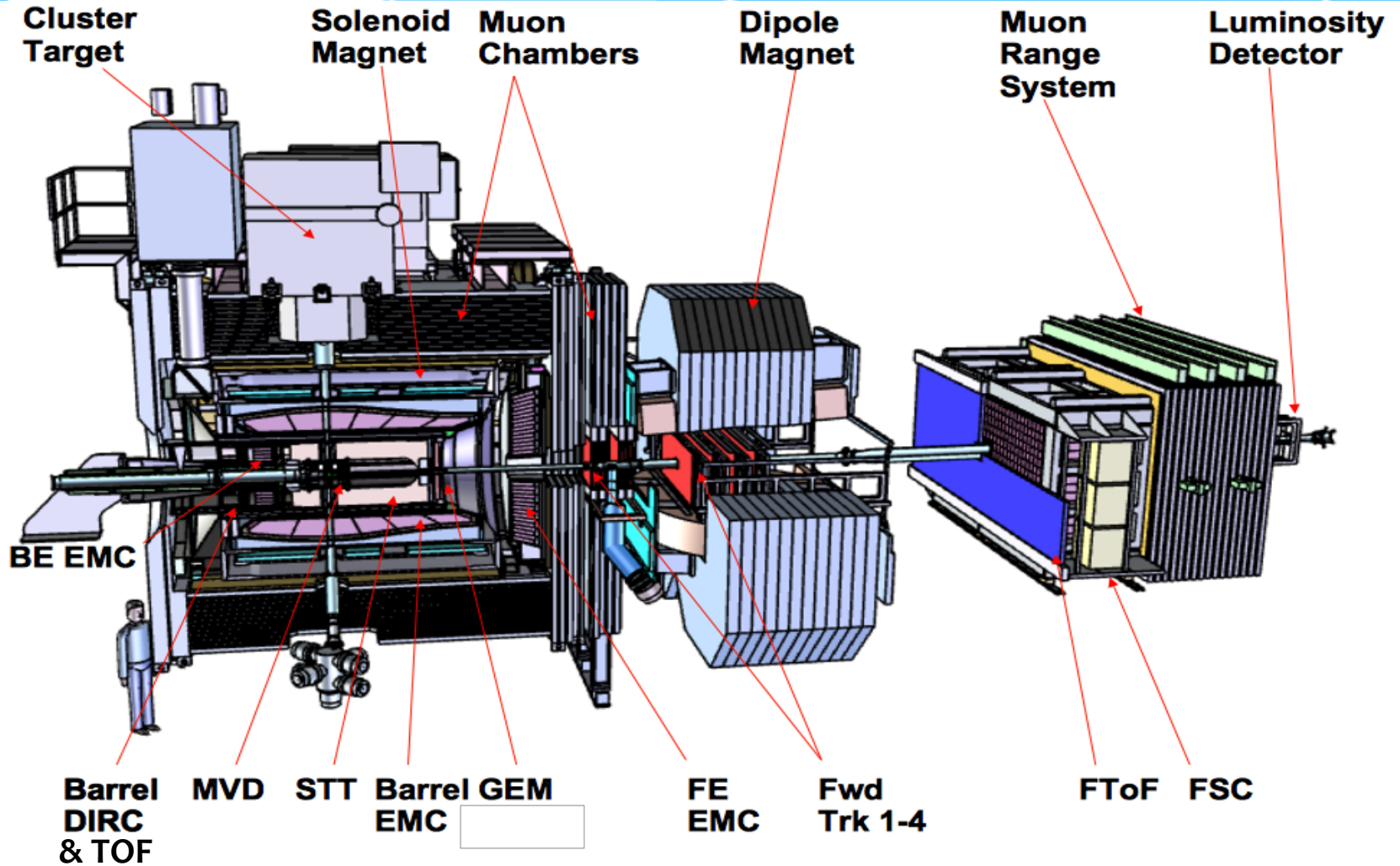
2. The antiproton facility at P1

1. Foreseen setup of FAIR/HESR/PANDA at phase one
 - ✓ Forward tracker behind the dipole?
 - ✓ Exceptions in definitions for simulations?
 - ✓ Role of phase-zero in document?
2. Physics generators and simulation, reconstruction, and analysis tools
 - ✓ Partial-wave analysis tools?
 - ✓ Production of background data? Coordinated effort?

2. The antiproton facility at P2



2. The antiproton facility at P1

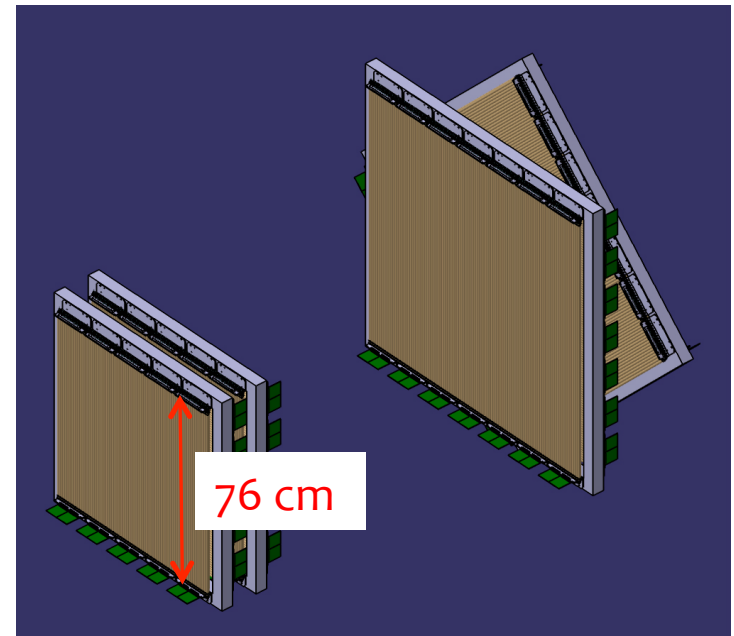
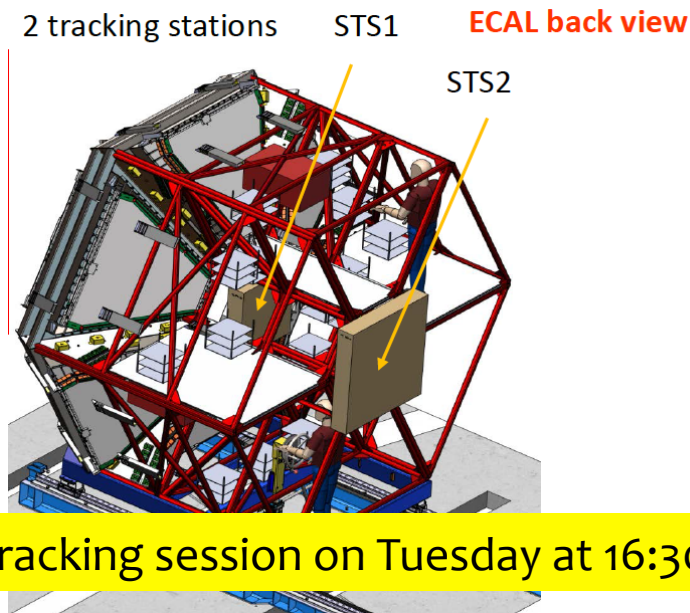


2. The antiproton facility at P1

$p p(A) \rightarrow Y$ (any hyperon) $X \rightarrow \Lambda e^+ e^- X$

PANDA pre-series and prototype detectors for STS1/2

- * **HADES** measures the dileptons & mesons
- * **PANDA** Straw Trackers for the baryon ($\Theta < 7^\circ$)
STS1: 640 tubes (use later as FT3/4)
STS2: 900 tubes (use later as FT5/6)
(4 double layers each)



Special tracking session on Tuesday at 16:30

3. Physics potential of PANDA at P1

1. Physics goals and foreseen impact of P1 program
 - ✓ What do we want to achieve at P1?
 - ✓ What will be the impact in our understanding of QCD or in technology?
2. Selected flagships at “phase one”
 - ✓ Feasibility studies via comprehensive MC simulations
 - ✓ Heart of the paper, discussion today!

High profile P1 projects?

1. *strangeness* d.o.f.

- ✓ Hyperon structure: spectroscopy and Dalitz decays
- ✓ Hyperon production observables: xsecs, spin, ...

2. *charm* d.o.f.

- ✓ Charmonium-like spectroscopy...
- ✓ ...X(3872) line shape and decays
- ✓ ... Charged Z-states spectroscopy
- ✓ ... Open-charm production??

3. *light-quark* systems

- ✓ Nucleon structure: EMFF in time-like regime
- ✓ Form factors in unphysical regime via π^0 production?
- ✓ Light-meson spectroscopy: glueballs, etc.???. Requires PWA!

4. Summary and long-term perspectives

1. Connection P1 to long-term PANDA program (P2 and P3)
 - ✓ Hyperon structure and dynamics → $|S|=3$ hyperons, hypernuclei, hyperfine splitting in $|S|=3$ atom, hyperon CP tests, charm hyperons, ...
 - ✓ Charm structure and dynamics → charmonium-like high spin states, open-charm spectroscopy/weak sector, charmonium-nucleon interaction, ...
 - ✓ Nucleon EMFFs at low q^2 → high q^2 EMFFs, TMDs, GPDs, TDAs, ...
 - ✓ ...
2. Overall impact of PANDA physics program

The “writing” process

1. Bottom-up approach
2. Role of physics convenors:
 - ✓ leading the drafting of document
 - ✓ cross-refereeing
3. Role of TAG:
 - ✓ advisory and refereeing
4. Simulations:
 - ✓ Settle on PandaRoot release
 - ✓ MC production: where, how much, coordinated?
5. Regular (monthly) meetings: eZuce, face-to-face at CMs

Addendum 9

update on procedure

- ✓ Request from CB for a *concise* PubRule
- ✓ Editorial committee (EC): Albrecht, Elisabetta, Karin, and Mamen: *many thanks for your valuable input and excellent work!!*
- ✓ 10th of October: first draft of EC to PubCom, revised draft on 20th of October, request by PC for submission to CB (cc to PhysCom)
- ✓ 31th of October: submission to chair of CB, internal note on forum for CB members posted on 11th of November
- ✓ Comments received so-far from GSI group, update by PC
- ✓ This CB meeting: notifying and request for further comments
- ✓ March '17: formal vote during CB on concise PubRule