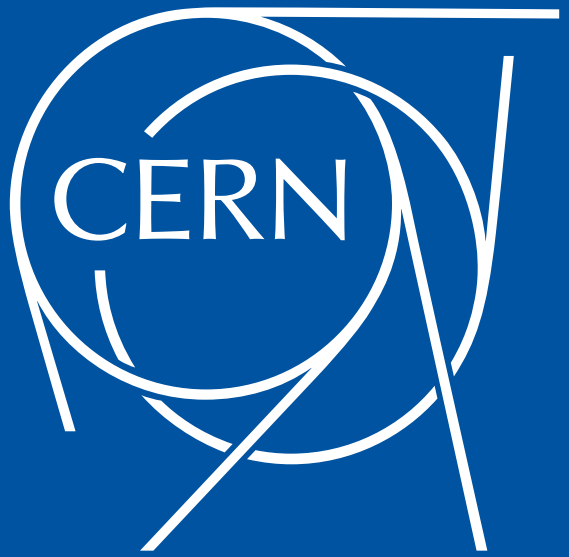
CERN

PBC technology WG miniworkshop: lasers & optics

B Döbrich, S Calatroni, A Siemko with G Cantatore, G Zavattini

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Intentions of the PBC technology mini-workshop

Your input wanted

Organizational matters

https://pbc.web.cern.ch/

The Physics Beyond Colliders Study Group

Overview

Physics Beyond Colliders (PBC) is an exploratory study aimed at exploiting the full scientific potential of CERN's accelerator complex and technical infrastructure, as well as its know-how in accelerator and detector science and technology. PBC projects complement the goals of the main experiments of the Laboratory's collider programme. They target fundamental physics questions that are similar in spirit to those addressed by high-energy colliders, but require different types of beams and experiments. The PBC mandate is available **here**.

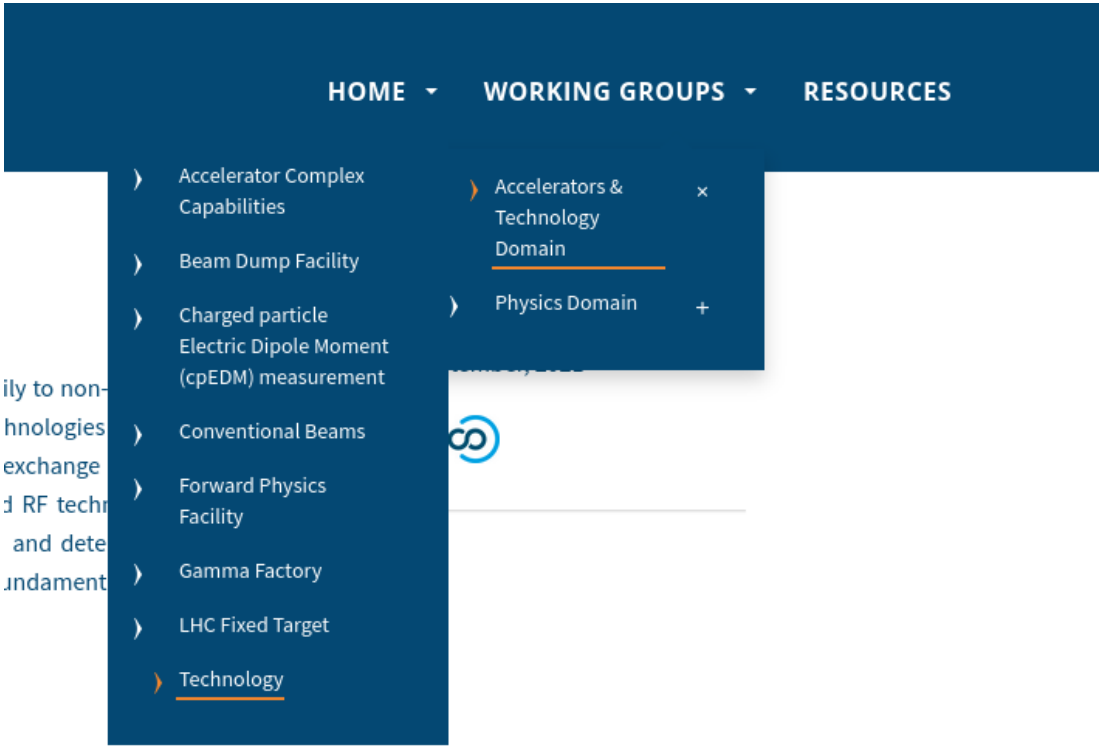
Organization

The kick-off workshop held in September 2016 identified a number of areas of interest. Working groups have been set-up to pursue studies in these areas. See '**Organization**' for a detailed breakdown of the current structure.

New Ideas

The Physics Beyond Colliders study remains open to further ideas for new projects. Instructions to submit new ideas are given **here**.

https://pbc.web.cern.ch/



CERN Document Server **1** records found Search took 0.44 seconds.

1. **PBC technology subgroup report** / Siemko, Andrzej (CERN) ; Dobrich, Babette (CERN) ; Cantatore, Giovanni (Universita e INFN Trieste (IT)) ; Delikaris, Dimitri (CERN) ; Mapelli, Livio (Universita e INFN, Cagliari (IT)) ; Cavoto, Gianluca (Sapienza Universita e INFN, Roma I (IT)) ; Pugnat, Pierre (Lab. des Champs Magnet. Intenses (FR)) ; Schaffran, Joern (Deutsches Elektronen-Synchrotron (DE)) ; Spagnolo, Paolo (INFN Sezione di Pisa, Universita' e Scuola Normale Superiore, Pisa (IT)) ; Ten Kate, Herman (CERN) *et al.*
Goal of the technology WG set by PBC: Exploration and evaluation of possible technological contributions of CERN to non-accelerator projects possibly hosted elsewhere: survey of suitable experimental initiatives and their connection to and potential benefit to and from CERN; description of identified initiatives and how their relation to the unique CERN expertise is facilitated..
CERN-PBC-REPORT-2018-006.- Geneva : CERN, 2018 - 31. **Fulltext:** PDF;
Detailed record - Similar records

Add to basket

2021 Technology Working group core members

Conveners: Babette Döbrich, Andrzej Siemko, Sergio Calatroni
Core Members: Giovanni Cantatore (aKWISP – INFN & Univ. Trieste), Gianluca Cavoto (Carbon Nanotubes, INFN & Univ. Roma I), Antonio Perin, Jessica Golm (HTS/RADES, Friedrich-Schiller-Univ. Jena), Livio Mapelli (DarkSide, INFN and Univ. Cagliari), Pierre Pugnat (Grenoble Haloscope – CNRS-LNCMI Grenoble), Joern Schaffran (JURA, ALPS-II, DESY), Paolo Spagnolo (STAX, INFN & Univ. Pisa), Herman Ten Kate (BabyIAXO, Twente Univ.), Guido Zavattini (VMB-INFN & Univ. Ferrara).

PBC technology WG: Mandate

The Technology WG will explore and evaluate possible technological contributions of CERN primarily to non-accelerator-related experimental physics initiatives and projects that may also be hosted elsewhere, and will survey technologies that could become relevant to CERN accelerator and non-accelerator projects.

The working group will favour the exchange of experience and expertise in technological domains such as superconducting and normal conducting magnet and RF technology, cryogenics, optics, vacuum and surface technology to support the development of new physics experiments and detection methods like quantum sensing and new (accelerator and non-accelerator) experiment proposals aiming at fundamental Standard Model physics measurements and/or addressing physics Beyond the Standard Model questions.

$\Rightarrow$ how to best do that?

connecting “users” and CERN technical staff

- even after (only) 6 years at CERN I still discover new groups/expertise on campus that I was unaware of
- this ‘situation’ must be even ‘worse’ for people not always on site, or only aiming to come here

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- **important:** not a workshop to review physics in detail. rather very focused on **technology**

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Assuming today is a success...

...possible topics identified so far for future workshops

- SC RF technology (cavities) $\rightarrow$ done in September!
- lasers & optics $\rightarrow$ today
- SC technology (magnets and other)
- Cryogenic EM/atomic detection technologies
- UHV/Coating technologies
- joint workshop with Knowledge Transfer?
- ....

If well-received, would like to tackle the other topics, with your help! Please volunteer if one of the topics interests you, we can exchange ideas for all of them and beyond. Just drop us (the conveners) an email

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Fully online format

- compromise between workshop length, number of talks etc
- talks of $<$15min $+$ immediate urgent questions (pls "raise your hand" in zoom)
- last time: write comments, questions here:
  link to google doc
- this time: write comments, questions here:
  link to new google doc
- what can't be handled in the discussion block can be followed up in smaller circles. Speakers very encouraged to review questions posed to them

Conclusions

- hope that everyone profits in some way
- come to us with any critique!
- let's get started!

Start of Backup

PBC technology WG: mandate

The Technology WG will explore and evaluate possible technological contributions of CERN primarily to non-accelerator-related experimental physics initiatives and projects that may also be hosted elsewhere, and will survey technologies that could become relevant to CERN accelerator and non-accelerator projects. The working group will favour the exchange of experience and expertise in technological domains such as superconducting and normal conducting magnet and RF technology, cryogenics, optics, vacuum and surface technology to support the development of new physics experiments and detection methods like quantum sensing and new (accelerator and non-accelerator) experiment proposals aiming at fundamental Standard Model physics measurements and/or addressing physics Beyond the Standard Model questions.

Objectives

- Contribution to advancing conceptual designs where appropriate (e.g. VMB@CERN)
- Identification and promotion of synergies with Quantum Sensing Initiatives at CERN and with other PBC Working Groups (e.g. Gamma Factory SPS PoP).
- Documentation of identified and undertaken initiatives and benefits for the experimental community.


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