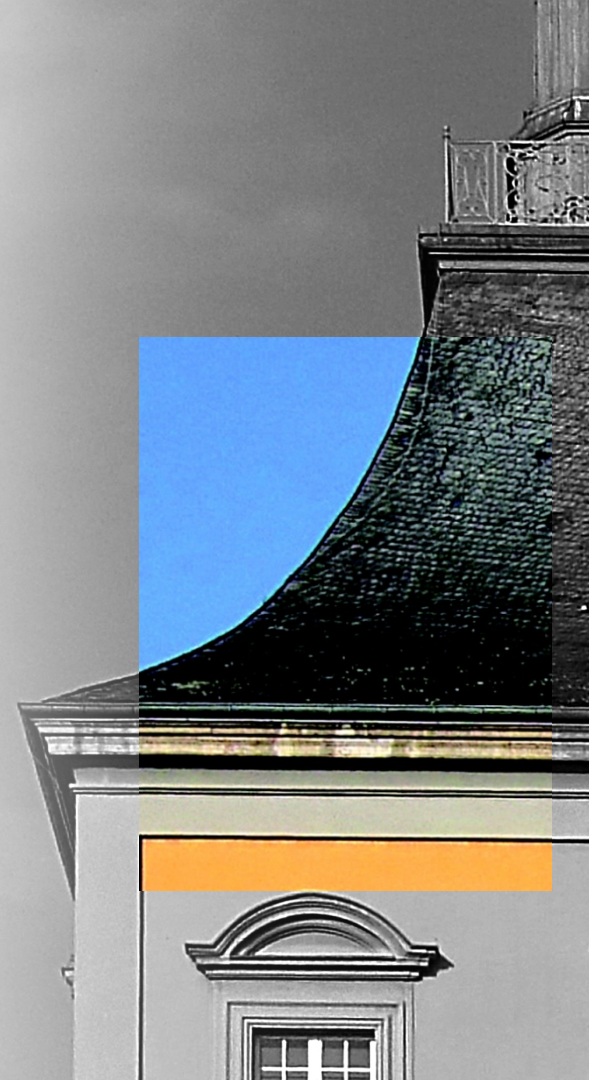


Belle II Vertex Detector Upgrade Working Group

C. Marinas
University of Bonn



Conditions

Y.Ushiroda
Oct. 2018

- This is just an informal proposal of feasibility studies. No discussion yet among IPNS/KEK/MEXT. No funding secured.
- Probably it is wise to keep the current boundary conditions between machine and detector, and also between sub-detectors as the baseline for the new detector.

Draft Mandate of Upgrade working group

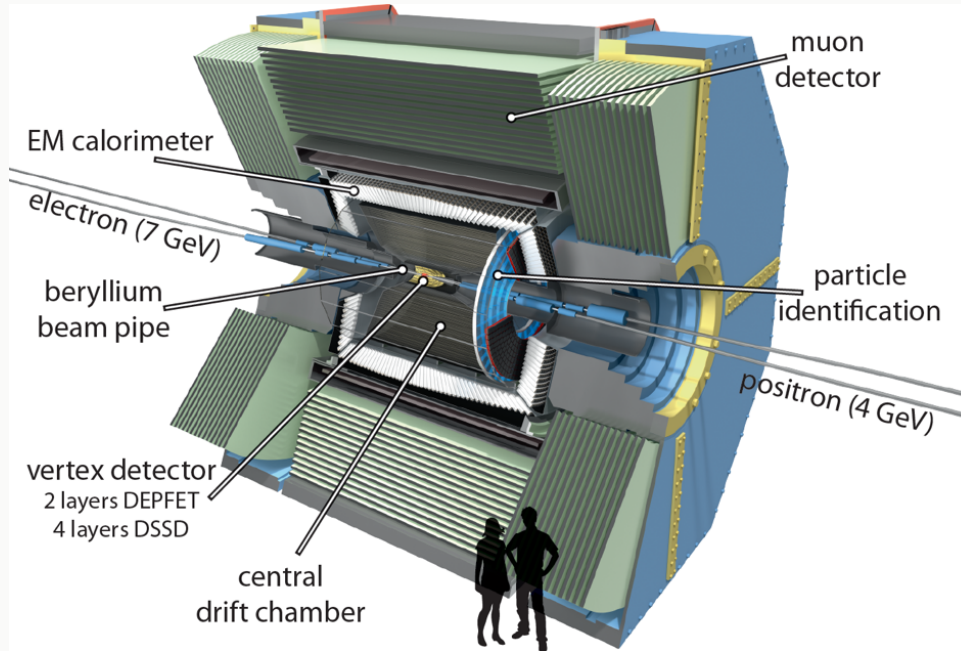
- The Upgrade working group is formed by **representatives of all the detector subsystems** and has the mandate to coordinate activities to answer the following questions:
 1. Check the impact of $L=5 \times L_{\text{design}}$ ($4 \times 10^{36}/\text{cm}^2/\text{sec}$) on Belle II
 2. Review technical solutions for sub-detectors that cannot withstand the expected background levels.
 3. Evaluate how much the luminosity can be increased before major detector upgrades are required
 4. Observe what machine group will propose as their upgrade plan, and try to accommodate as long as possible

Upgrades

For each system

- Identify possible upgrade paths that would allow increasing luminosity by a factor >5
 - Initially just a brainstorming of possibilities to explore the entire phase space
 - Briefly examine merits/difficulties to identify the most interesting options
 - Performance, robustness, technology readiness, cost, complexity, required time, etc...
- Start a deeper evaluation of most promising solutions
 - Give a ballpark estimate of cost, time, and effort required
 - If positive feedback, start a conceptual design

Belle II Upgrade Working Group



- Upgrade Working Group formed
- Evaluating possible bottlenecks for the different subdetectors (and machine)
- Investigation available technologies for future upgrades
- Plenaries during B2GM and BPAC and regular UWG meetings

Belle II VXD Open Workshop

CERN, 8-10th July

<https://indico.cern.ch/event/810687/>

- 100 CHF Registration with coffee and light meal
- 65 CHF Dinner at the Glass Box
- Belle II members + External experts

Belle II VXD Open Workshop

8-10 July 2019
Europe/Zurich timezone

Search...

Home

Timetable

Registration

Organizing Committee

Practical Info

- How to get to CERN
- Accommodation

Home

The [Belle II experiment](#) has recently started taking [physics data](#), and is expected to run for at least the next 5 years. Given the strong physics opportunities offered by flavor physics, the possibility of an upgrade of the accelerator is now being considered.

The collaboration has formed an upgrade working group with the purpose of looking at possible detector evolution in view of future upgrades.

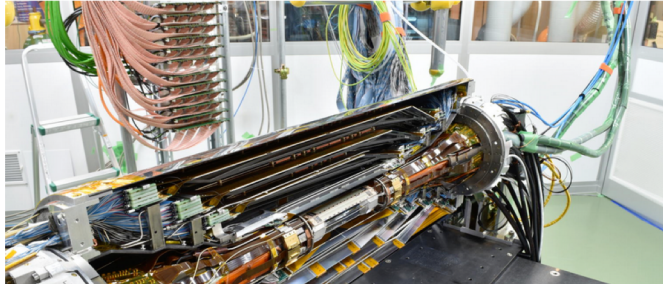
In the context of this work, a Belle II VXD open workshop on possible future technologies will be held at CERN on 8-10 July, 2019 (<https://indico.cern.ch/event/810687/>).

The spirit is to discuss about the limits of our current detector and have an initial brainstorming about future possibilities, involving a broad community not limited to Belle II members.

The [workshop organizing committee](#) will try to put together experts both from Belle II and from the community at large to cover the major topics and allow a broad discussion.

You are cordially invited to attend the workshop. Please feel free to forward this information to potentially interested colleagues. You can contact any member of the organizing committee, or in particular Francesco.Forti@psi.inf.it for questions, comments, and proposals.

Council Chamber Monday and Tuesday, Filtration Plant Wednesday morning.



6

THANKS