Belle II
Riunione con i referee

30-03-2015

G. Finocchiaro

INFN - Laboratori Nazionali di Frascati

- Situazione SuperKEKB
- Detector
- Beast
- Riassunto richieste

Situazione (Super)KEK(B)

- La costruzione di SuperKEKB è stata completamente finanziata, ed è praticamente conclusa
- Problemi nello stanziamento dei fondi di operazione di KEK
  - Budget 2014 di KEK inferiore alle richieste
  - Budget di operazione inizialmente proposto dal MEXT per il 2015 nettamente insufficiente per il commissioning di esperimento e acceleratore
  - È seguita una fase di contrattazione per ottenere un budget più favorevole, con forti pressioni internazionali
  - Dopo un periodo di grande incertezza sull'inizio effettivo del commissioning, esiste ora una data certa

Situazione SuperKEKB

KEK Director General elect M. Yamauchi

- Project implementation (6-year) plan for all KEK projects by April 2015
- Super KEKB commissioning begins in **January 2016** (Linac starts in January and KEKB in February.)
- Appreciates continuous efforts/supports from Belle II institutions/funding agencies

Dal sommario dell'EB al B2GM di febbraio 2015

B-Factory Programme Advisory Committee
Short Summary

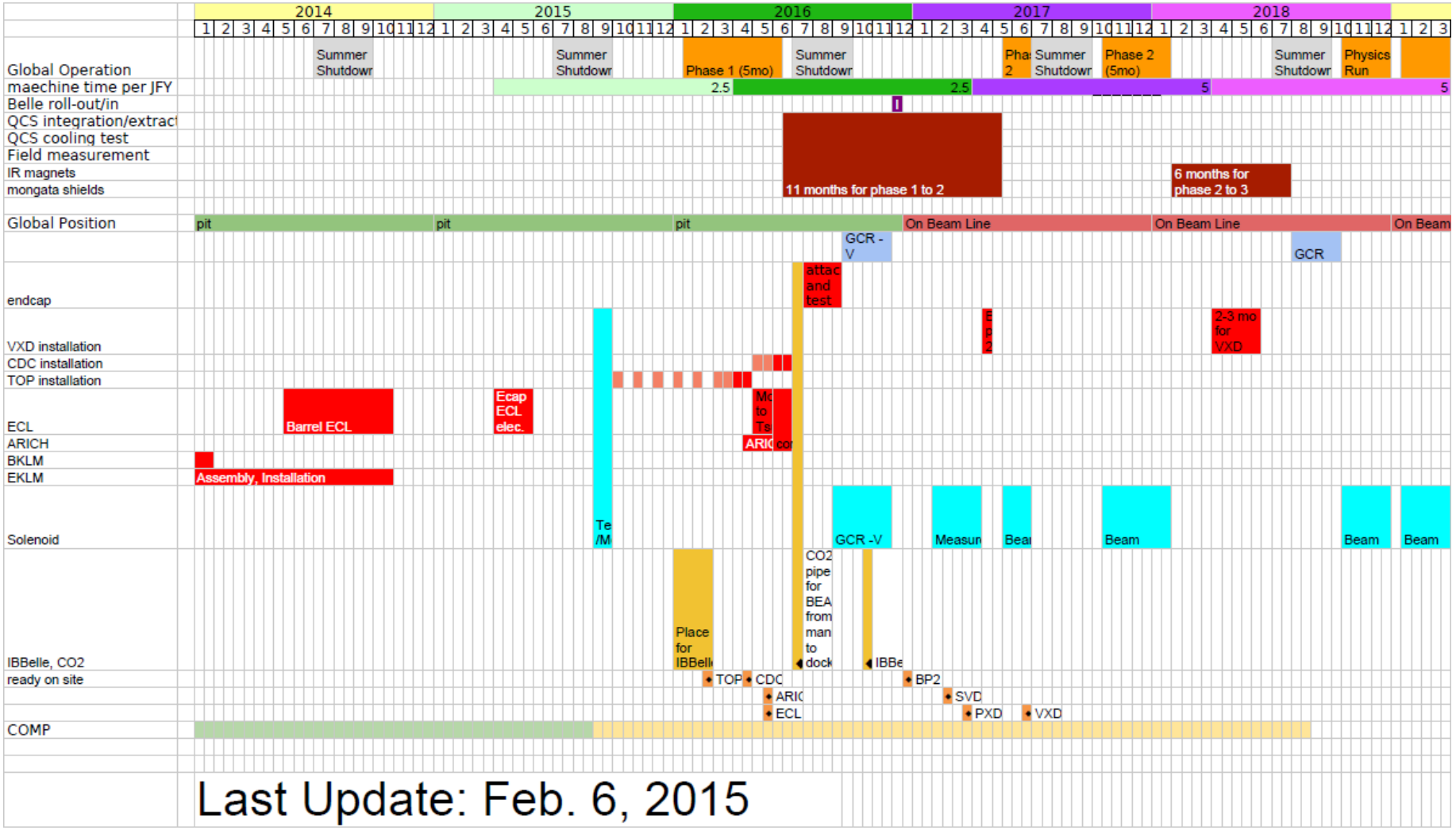
9th meeting, 9 – 11 February 2015 at KEK

There have been uncertainties in the start of SuperKEKB commissioning work during the last one year due to budgetary problems. A revised plan was shown in this meeting, where the start of physics data taking would be delayed by one year, compared to the original plan, to October 2018. This would allow the Belle II experiment to start physics with the complete detector, rather than with a partially installed barrel particle identification system as considered during the last committee meeting in February 2014. However, a further delay should be avoided.

Schedule

USHIRODA-SAN

https://belle2.cc.kek.jp/~twiki/bin/view/Detector/BelleIISchedule



Commissioning phases

- Phase 1
  - No QCS, No Belle II solenoid
  - Basic machine tuning
  - Low emittance tuning
  - Vacuum scrubbing
    - Belle II people request enough vacuum scrubbing in this stage (before Belle II roll in).
    - At least one month at beam currents of 0.5~1A /ring.
  - DR commissioning starts before Phase 2.
- Phase 2
  - with QCS and Belle II (w/o Vertex detectors)
  - Low beta optics tuning
  - Small x-y coupling optics tuning
  - Beam collision tuning
  - Belle II background study
  - Target luminosity at this stage is 1 x 10^{34} $cm^{-2}s^{-1}$
- Phase 3
  - Physics run (Vertex detectors installed)
  - Increase beam currents
  - Beam tuning continued to increase luminosity

K. Akai, Other progresses and schedule of SuperKEKB, Jun. 18, 2014@B2GM

Detector – I

B-Factory Programme Advisory Committee
Short Summary

9th meeting, 9 – 11 February 2015 at KEK

BPAC

A recent change in the project structure, which established a project leader concentrating on the overall aspects of the silicon strip detector project, is highly appreciated. Good progress in the electronics development was reported. Production of pitch adapters remains on the critical path and its progress must be carefully monitored in a systematic manner along with other critical tasks. The committee appreciates the procedures put in place to qualify assembly sites and procedures to sign off components.

SVD

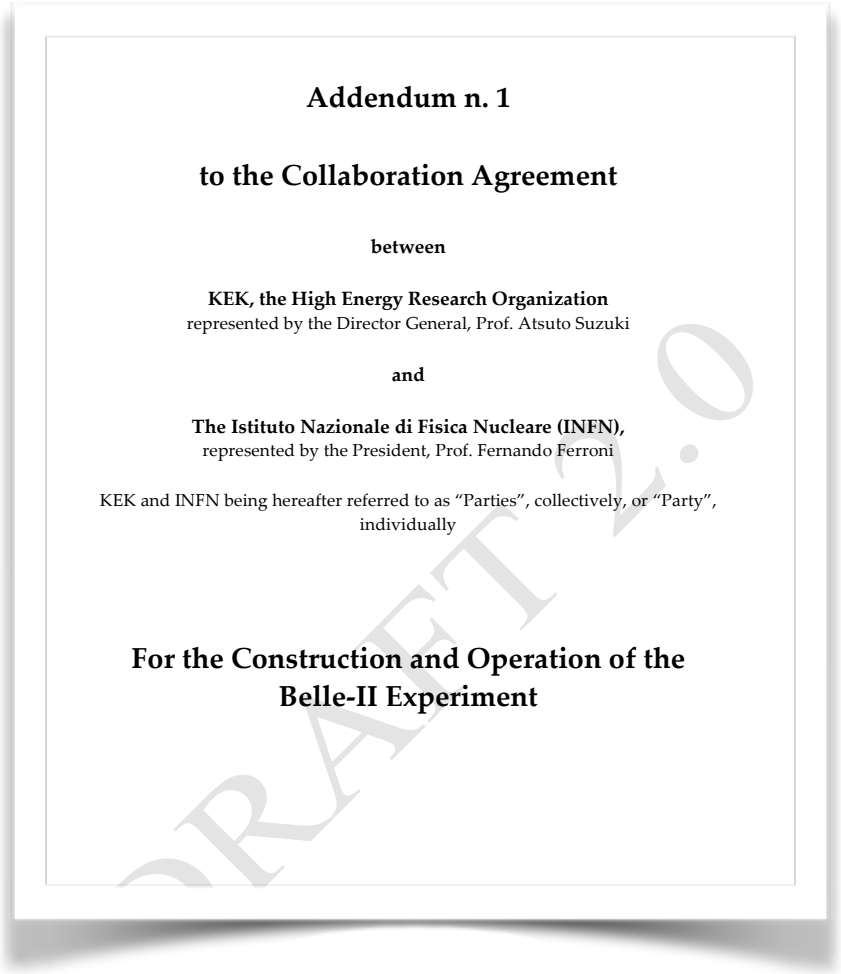
The first quartz bar box for the barrel particle identification system has been constructed and a production procedure established. However, various problems discovered during the construction demonstrate that the production process must be further improved and a very stringent quality control procedure must be in place. In parallel, an R&D study on the glueing procedure is encouraged to understand long term stability of the detector. The current plan is that the module acceptance test will be carried out at the Cosmic Ray Stand which is in operation now. A detailed programme m

TOP

A coherent software development plan is now in place and performance optimisation work has started. Developments in data acquisition and detector monitoring and control system are advancing well. Recent evolution in the Belle II computing model shows the increased importance of the US and European computing centres and institutes. The committee thinks that it is important to adapt the model and infrastructure requirement to the real needs of the experiment, while avoiding unnecessary complexity. The committee also notes that human resources in the computing related issues are rather limited.

COMPUTING+SW

Detector – II



Addendum n. 1

to the Collaboration Agreement

between

KEK, the High Energy Research Organization
represented by the Director General, Prof. Atsuto Suzuki

and

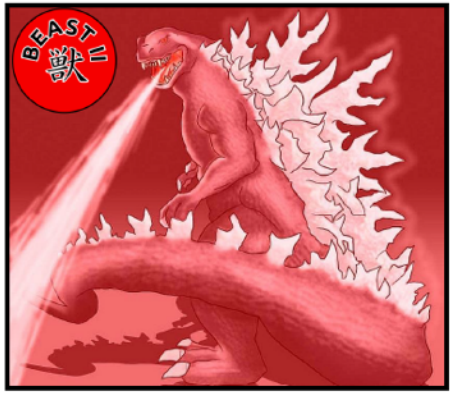
The Istituto Nazionale di Fisica Nucleare (INFN),
represented by the President, Prof. Fernando Ferroni

KEK and INFN being hereafter referred to as "Parties", collectively, or "Party", individually

For the Construction and Operation of the Belle-II Experiment

DRAFT 2.0

- MoU INFN-KEK per la costruzione pronto, in corso la seconda iterazione tra i rispettivi partners

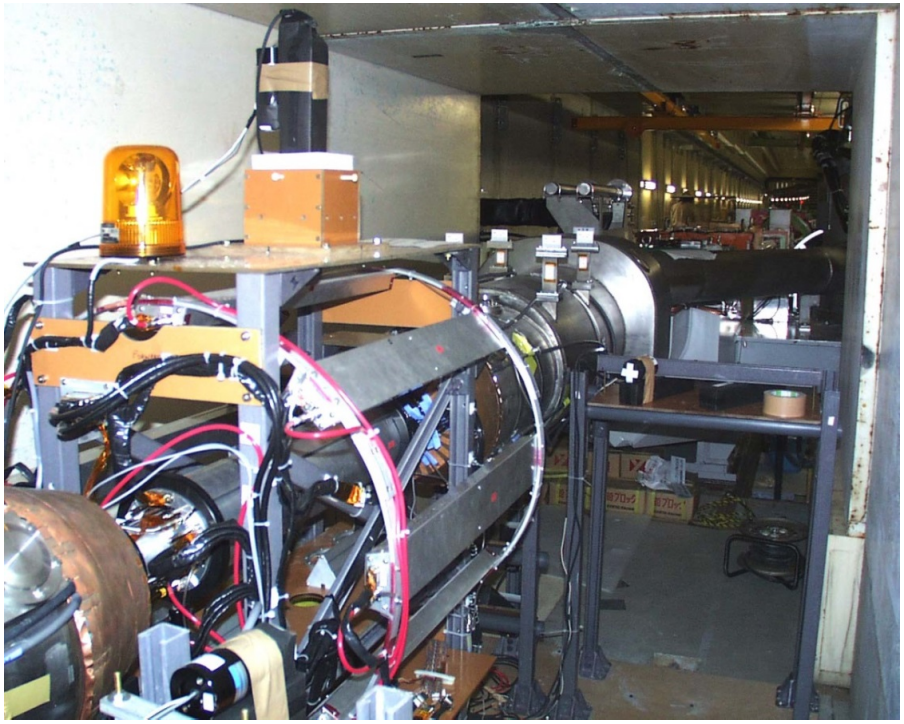


BEAST = **B**eam **E**xorcisms for **A** **St**able Belle Experiment

a.k.a. Commissioning Detector

Goals:

1. Protect Belle II: Ensure radiation levels safe before Belle roll-in
2. Measure individual beam background components
3. System tests (beam abort, VXD occupancy, cooling, mask control system)
4. Provide real-time feedback to SuperKEKB



BEAST I in the Cave, ca. 1998

There already was a BEAST. The current effort is really BEAST II.

Beast – coinvolgimento italiano

- SVD – coinvolgimento ben consolidato per monitor ambientale e di radiazione
- ECL – nuova attività
  - La fase 1 di Beast prevede tra l'altro di misurare i fondi macchina in 6 posizioni intorno all'(ipotetico) IP con dei cristalli di CsI(Tl)
  - ☞ Partecipazione del gruppo italiano con cristalli di CsI puro e LYSO
    - Rivelatori con rapido tempo di risposta per sostenere le alte rates previste
    - Misura di energia (E~1MeV) *e* flusso di particelle⇒ validazione del MC per i fondi
  - Riteniamo importante dare il nostro contributo a questa attività fondamentale per BelleII
  - Inoltre:
    - Il confronto tra performance di CsI(Tl) e CsI puro in condizioni di rates elevate è funzionale alla scelta finale sull'upgrade del calorimetro in avanti
    - Utilizziamo cristalli di CsI già finanziati dalla CSN1
- BEAST fase 1 inizia a gennaio 2016
  - Montaggio *agosto 2015*
  - Test di compatibilità del DAQ di tutti i rivelatori usati (**MiniBEAST**) ad *aprile 2015* a University of Hawaii
  - È un treno in corsa: siamo partiti velocemente e dobbiamo tenere un ritmo sostenuto

Anteprima delle richieste

- Tavola riassuntiva per comodità. Le richieste saranno discusse e giustificate in dettaglio nelle presentazioni dei sottorivelatori
- (richiesta 0) 8% di "consumption tax" sul materiale importato in Giappone
- SVD:
  - 19kE: schede di voltage separation del power supply sul lato N dei sensori + consumption tax sull'intero PS (*)
  - 150kE: acquisto di O(25) spares di large DSSD da HPK
- TOP:
  - 1.5kE: consumption tax 8% su pico-laser (*)
- ECL:
  - 12kE: missioni per installazione @ miniBEAST
  - 18kE: missioni per installazione e presa dati a BEAST
  - 6kE: cons.+licenze+inv per rivelatori BEAST (*)
  - 15kE: missioni per beam test a Mainz (*)

} sblocco s.j. installazione ECL

- COMP+SW:
  - Non abbiamo formulato richieste specifiche. Segnaliamo sofferenza per la scelta della commissione di non finanziare meeting (esempi: B2TIP in Europa, COMP/SW in USA)
- (*) totale=41.5kE possono essere coperti sbloccando s.j. vari
  - **16kE MOF LNF + 10/18 Tasca Missioni RN LNF + 15.5/30 Consumi SJ PG**