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# **7<sup>th</sup> Beta-beam Task Meeting**

## **Introduction - Status**

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# Where do we stand

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- **Month 40 in the 54-months Design Study (initially 48 months) .**
  - **No milestones in the last 6 months**
  - **Next milestones due in October 2008 (i.e. months 45)**
    - **M2.3 Final design low energy ring(s)**
    - **M3.3 Study of ion acceleration in PS and SPS and potential upgrades**
    - **M4.3 Decay ring design**
  - **The remaining deliverables are:**
    - **D1 Design of low energy rings**
    - **D2 Ion acceleration scenarios in PS and SPS**
    - **D3 Design of decay ring**
    - **D4 Conceptual design report for a beta-beam facility**
  - **and the new due date is at the end of the study i.e. July 2009.**
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# Objectives from Annex 1

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The objective is to do a Conceptual Design Study (CDS), covering all accelerator physics aspects, to demonstrate the feasibility of a beta-beam facility.

The final report will contain:

- the optics design of the accelerator chain,
- beam dynamic simulations of critical processes,
- a loss management concept
- first stage technical designs demonstrating the feasibility of critical hardware → collimation, SC magnets, 40/80 MHz RF, RCS magnets
- a facility layout → only conceptual, no TL design, no TI, no CV.
- a cost estimate → overall no detailed breakdown, Linac, RCS, DR

# Recent developments and activities

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- **Studies for collimation scheme in decay ring**
  - ACCSIM + FLUKA
  - Transport of decay products in the ring
  - Halo formation due to longitudinal merging
- **RP studies for beta-beam accelerators**
  - Rapid Cycling Synchrotron (ST) , PS machine
  - Activation and radiation damage on PS main magnets
- **Technical and conceptual designs for RCS main systems**
  - Main magnet system

# Technical issues for the next months

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- **Completion and check of parameter list**
- **Collimation in the Decay Ring**
  - Simulation + beams loads + system layout
  - Collimator pre designs (material, dimensions, etc.)
  - Absorbers and SC magnet protection
- **Decay Ring RF system – not started**
  - No adequate manpower available
  - Aim at very rough concepts for the 40/80 MHz systems
  - Decay Ring RF system – not started
- **Decay Ring SC dipoles**
- **RCS RF and main power converters**
- **Radiation protection / beam loss management all machines**
- **Cost estimates**

# Time schedule

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- **14 months left until end of the study (July 2009)**
- **5 months until next milestones (due in October 2008)**
  - **Final design low energy ring(s)**
  - **Study of ion acceleration in PS and SPS and possible upgrade**
  - **Decay ring design**
    - **May 08 – December 08 for technical designs**
    - **In parallel preparation of final reports**