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

## **Introduction - Status**

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# Where do we stand

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- **Month 45 in the 54-months Design Study (initially 48 months) .**
- **Three 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 → focus of today's meeting**
- **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**
- **All due at the end of the study i.e. July 2009.**

# 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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- **Decay ring**
  - **Collimation studies with ACCSIM + FLUKA**
    - Particle load on primary collimators during merging, bunch shortening (longitudinal halo)
    - Worst case for collimator design
    - Tracking of scattered, secondary particles
  - **Concepts for 40/80 MHz RF systems**
- **RP studies for beta-beam accelerators**
  - **PS machine, SPS, Decay Ring**
- **RCS**
  - **Chopper system to improve loss pattern from trapping**
- **Final Report**
  - **First drafts of main chapters (Baseline scenario, RCS, DR, ..)**

# 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**
  - “Rough” concept for the 40/80 MHz systems
  - RF system parameters, comparable systems
- **Technical systems for all machines**
  - Concepts or comparable existing systems
  - References for feasibility, cost estimates
- **Cost estimates**

# Time schedule

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- **9 months left until end of the study (July 2009)**
  - **October 08 – March 08 for technical items**
  - **In parallel preparation of final reports**
  - **April 08 – July 08 editing of final reports, coherency with EURISOL, etc.**

# Programme

09:00	Welcome and introduction	M. Benedikt
09:15	Beta-beams in the FP7 Euro-ν programme	E. Wildner
09:45	Status of the 60GHz source	T. Thuillier
10:15	Beam chopping for RCS injection	A. Lachaize
10:30	COFFEE	
11:00	Extension of the StrahlSim code	P. Spiller
11:20	40-80 MHz RF system for the decay ring	E. Jensen
11:40	DR main magnets: design, cost estimate and infrastructure requirements	J. Bruer
12:20	LUNCH	
14:00	DR Radiation protection studies	S. Trovati
14:30	DR Momentum collimation	P. Delahaye
15:00	RIB production for β-beams in EURISOL FP6	T. Stora
15:20	COFFEE	
15:45	Preparation of final deliverables Final Report Deliverables D1-D3	All
17:00	Discussion and conclusions	All
17:30	Steering committee	
18:00	END	