

---

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

## **Introduction - Status**

**Michael Benedikt**  
**AB Department, CERN**

# Where do we stand

---

- **Month 20 in the 4-year Design study.**
- **Milestones in the last reference period (all due in month 18)**
  - **First order optics design RCS (optics, injection studies, etc.)**
  - **Identification of limitations in PS and SPS (space charge, vacuum, losses)**
  - **First order optics design Decay Ring (lattice, injection, collimation section, etc.)**
- **All milestones reached.**
  - **Everything OK as far as formalities are concerned...**
- **But some problems were found**

# Known or anticipated problems

---

- **18Ne shortfall (more than one order of magnitude)**
  - “Bypassed” in DS with “top-down” approach in intensities.
  - Push for activities on Target task (next EURISOL CB).
  - New proposal for production ring (C. Rubbia).
- **Collimation and absorbers in the Decay Ring**
  - Very high power / energy deposition
  - Protection of SC dipoles
- **Decay Ring RF system**
  - Beam loading, very high peak current due to duty factor
- **Beam losses in PS**
  - Absorbers in open-C magnets
  - PS2 with optimized lattice and collimation scheme

# Next steps (coming 12 months)

---

- **Document present status and investigations asap (if not done)**
  - EURISOL note, conference papers, etc.
- **Freeze optics design of machines and define requirements of all technical systems**
- **Look into feasibility and basic design of critical systems**
  - Decay ring RF, Collimation, Magnets, SPS 40 MHz, etc...
- **Basic specifications of all larger systems as basis for cost estimate**
- **Produce coherent picture along machines (in parallel to above)**
  - RF programs for all machines
  - Tracking studies for all machines (TRIUMF)
  - Parameter list with explanations, etc...

# Time schedule

---

- **28 months left until end of the study (4 years)**
- **We promised a “Conceptual design report” with cost estimate and feasibility of critical technical systems**
- **18 months until final milestones (due in month 39)**
  - **Final design low energy ring(s)**
  - **Study of ion acceleration in PS and SPS and possible upgrade**
  - **Decay ring design**
  - **Next 12 months from previous slide**
  - **13-18 for technical design and cost estimates**
  - **19-28 for coherency in overall design, final report & reserve.**