



Status of MedAustron

Michael Benedikt

OP day, 26th January 2012

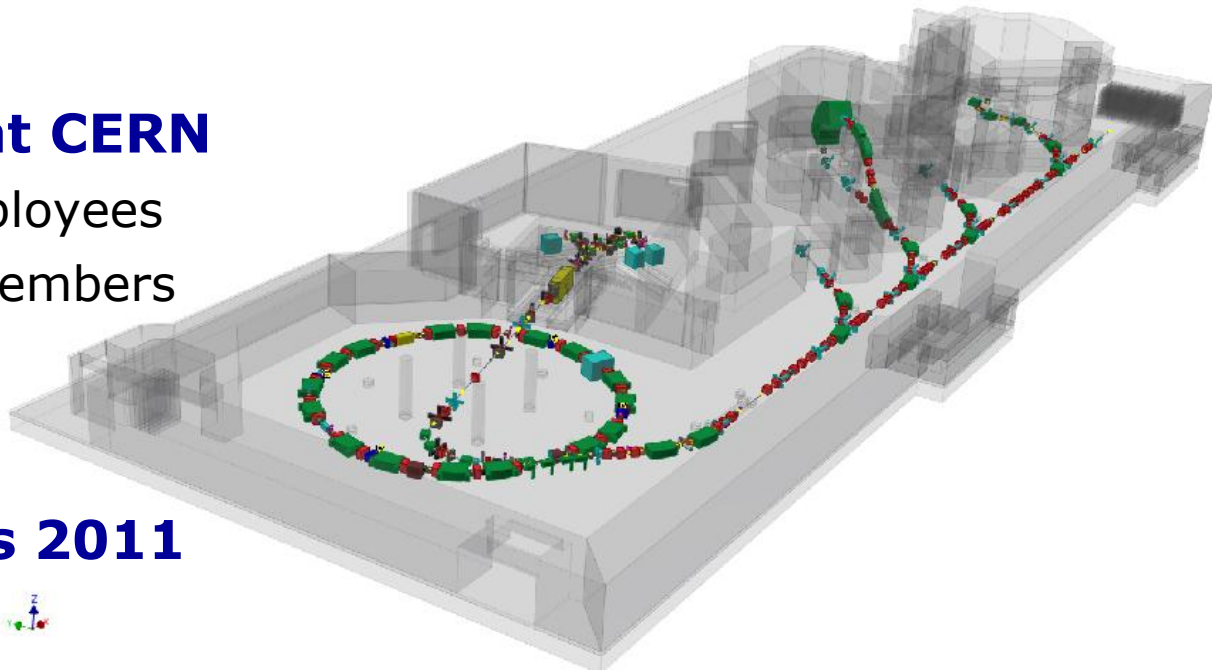


MedAustron project - overview

- **Construction of a synchrotron based ion-therapy and research centre in Austria**
 - Design based on CERN/PIMMS study and Italian CNAO project
 - Collaboration with CERN for accelerator construction

- **Accelerator team at CERN**

- 42 MedAustron employees
- 7 FTE CERN staff members
- 15 FTE consultants



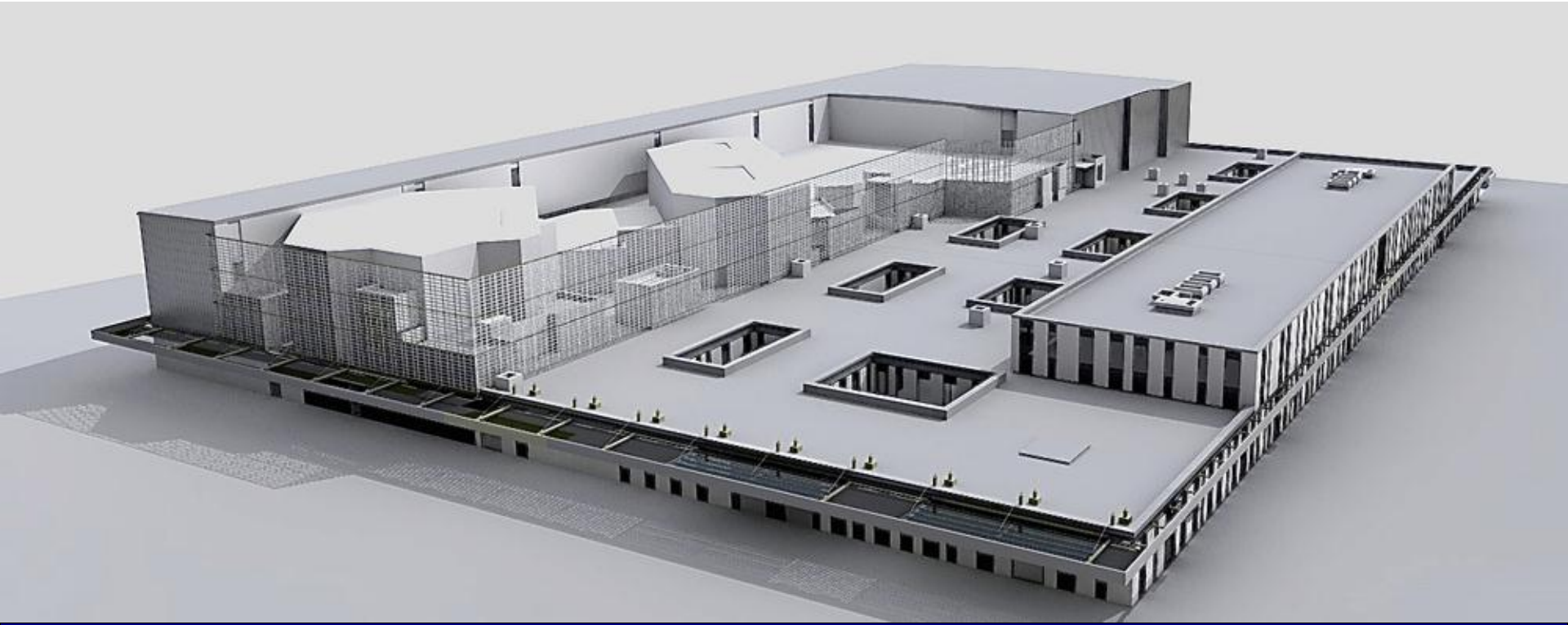
- **Main achievements 2011**

- **Civil engineering** 
- **Injector test stand installation and operation**
- Accelerator component production



Civil Engineering

- **Aims and schedule for 2011**
 - Ground breaking spring 2011
 - Start Civil Engineering May 2011, total surface 25.000 m².
 - Finish Civil Engineering by end 2011
 - Start of TI installation begin 2012





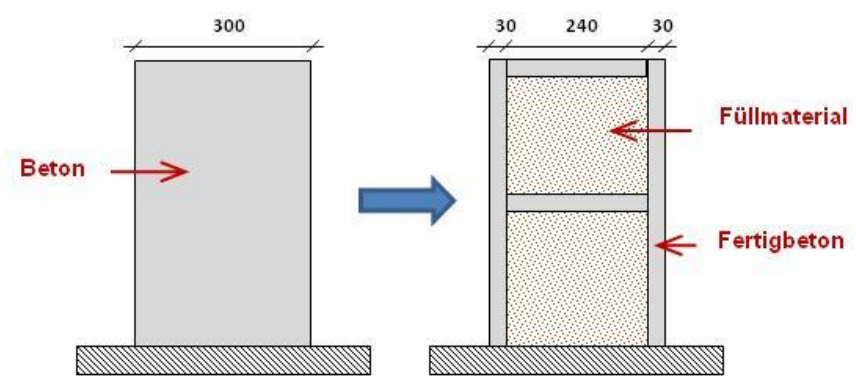
Sandwich construction shielding walls

- Use of excavation material, filling a honey-comb structure

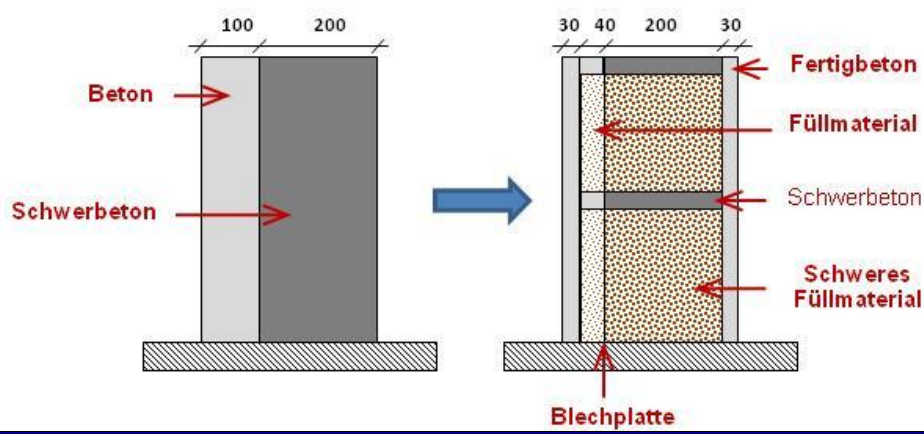
- Economising ~25.000 m³ concrete and ~2500 tons of steel
- Economising ~10.000 truck journeys
- 25000 m³ x 200 Euro = 5 MEURO
- Time saving due to "dry" construction technique ~3 months



Synchrotron hall



(a)





Civil engineering progress

- **Ground breaking March 2011**



- **Site Visit August 2011**





August 2011 - November 2011



• **Status 25.08.2011**

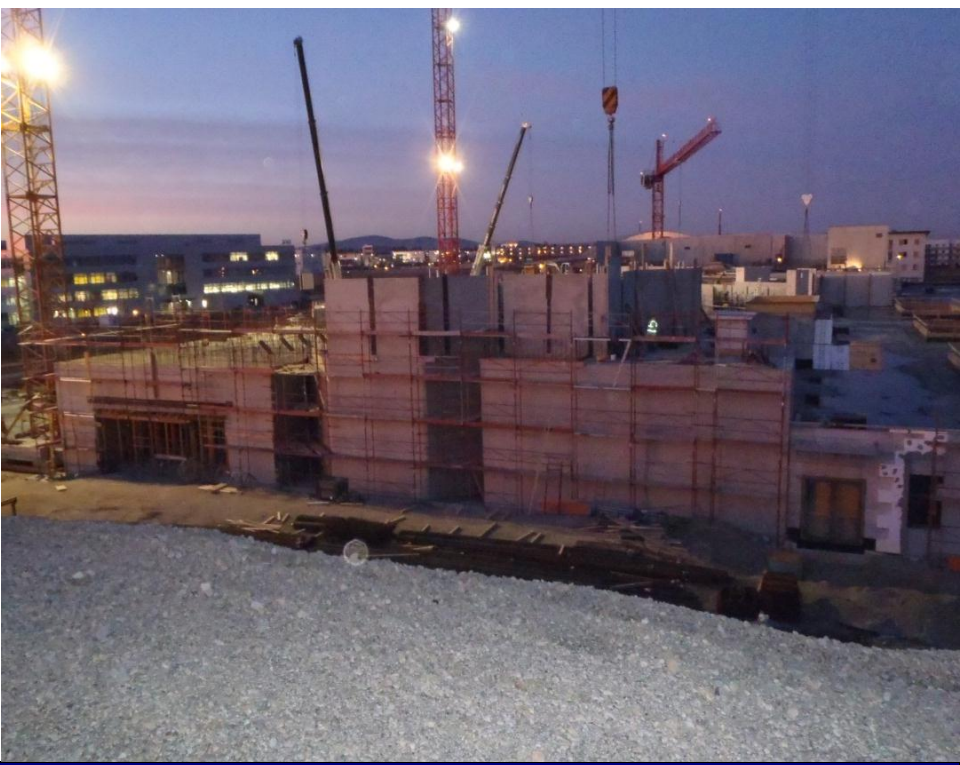


• **Status 20.11.2011**



Status – Civil Engineering January 2012

- **Conventional building civil engineering finished**
 - Interior finishing and technical installations ongoing
- **Accelerator building CE will finish end February 2012**
 - Technical infrastructure installation for accelerator planned from March - September 2012





Injector test stand at CERN

- **Main motivations for test stand are:**

- Tests and tuning of ion source and other equipment such as beam diagnostics tools, newly developed RFQ
- Learning process for the team for installation, operation, etc.
- Possibility to prepare for operation, independently from civil engineering and TI progress in Austria → decoupled schedules!
- Once building is ready, a fast removal to WN and a fast commissioning and start of operation is possible.

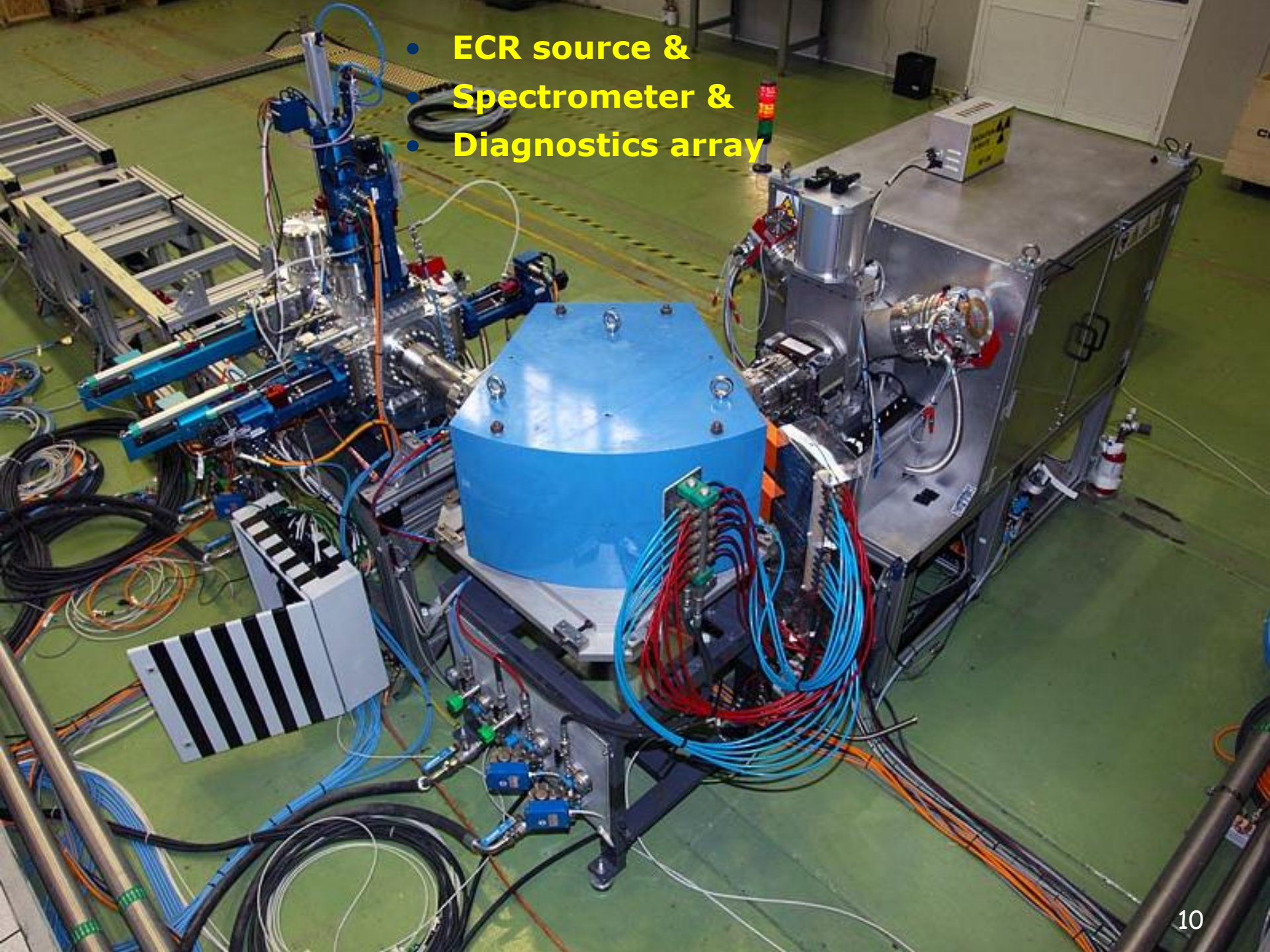
- **Status**

- All TI installations were finished in autumn 2011
- Ion source (Pantechnik ECR source) delivered in November 2011
- Beam operation since December 2011.

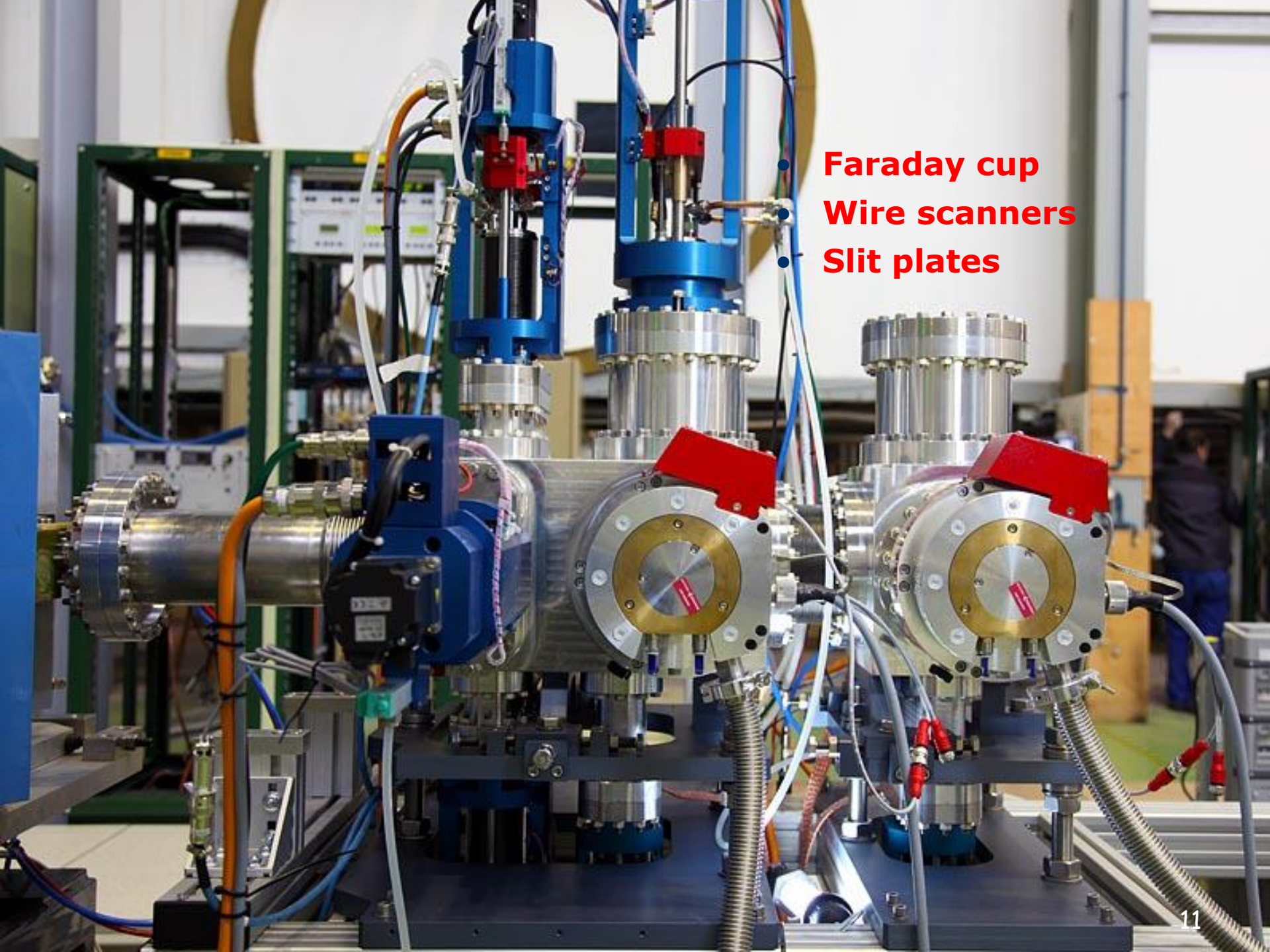


• **ISR hall 184, 25.01.2012**

- **ECR source &**
- **Spectrometer &**
- **Diagnostics array**

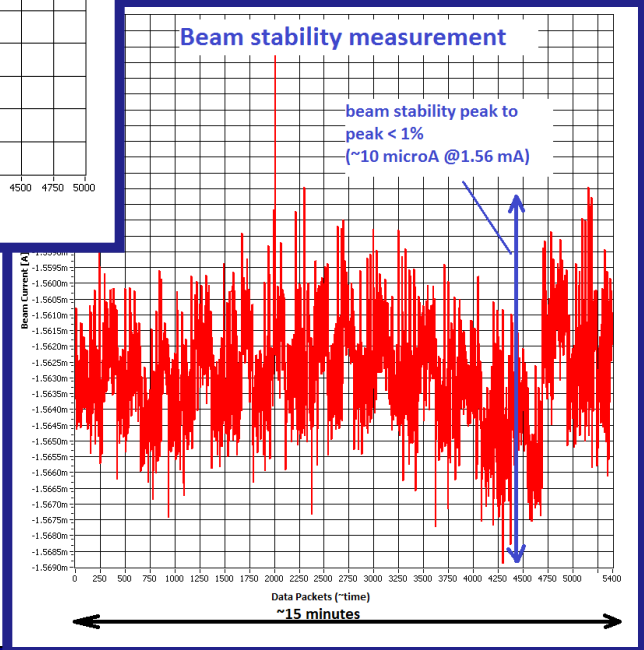
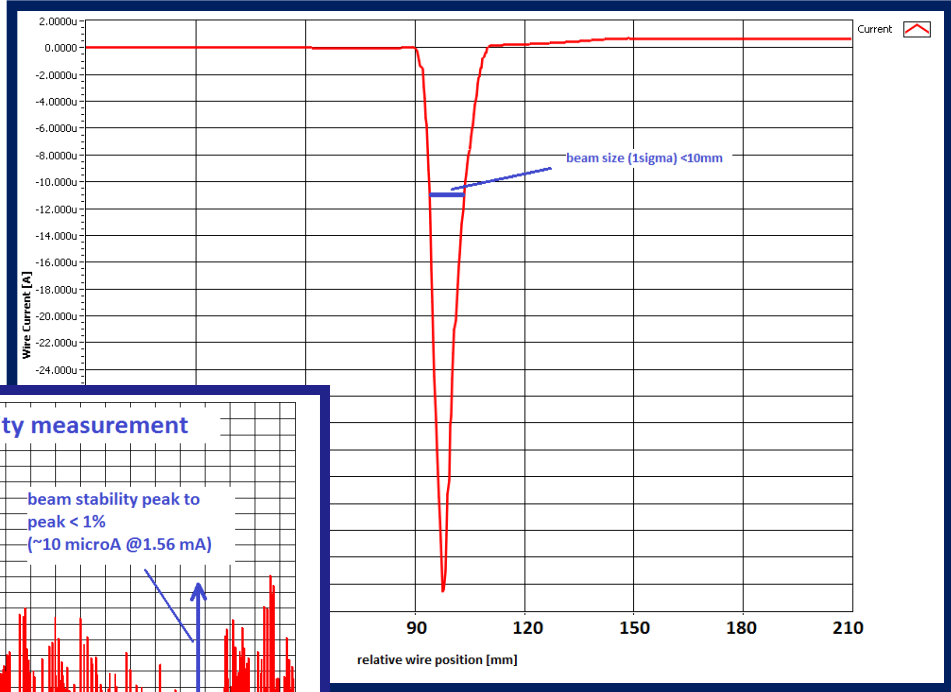
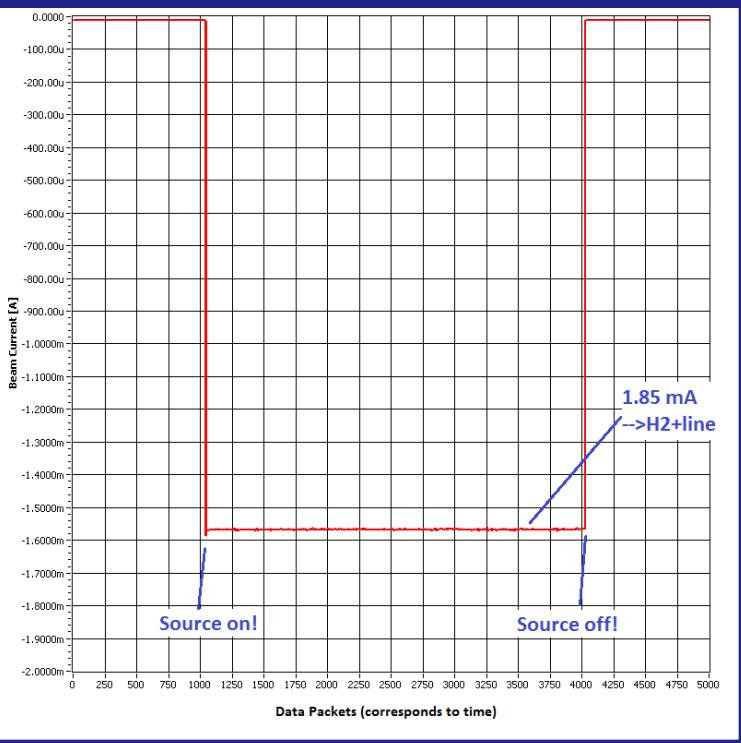


- Faraday cup
- Wire scanners
- Slit plates





Beam current /profile measurements

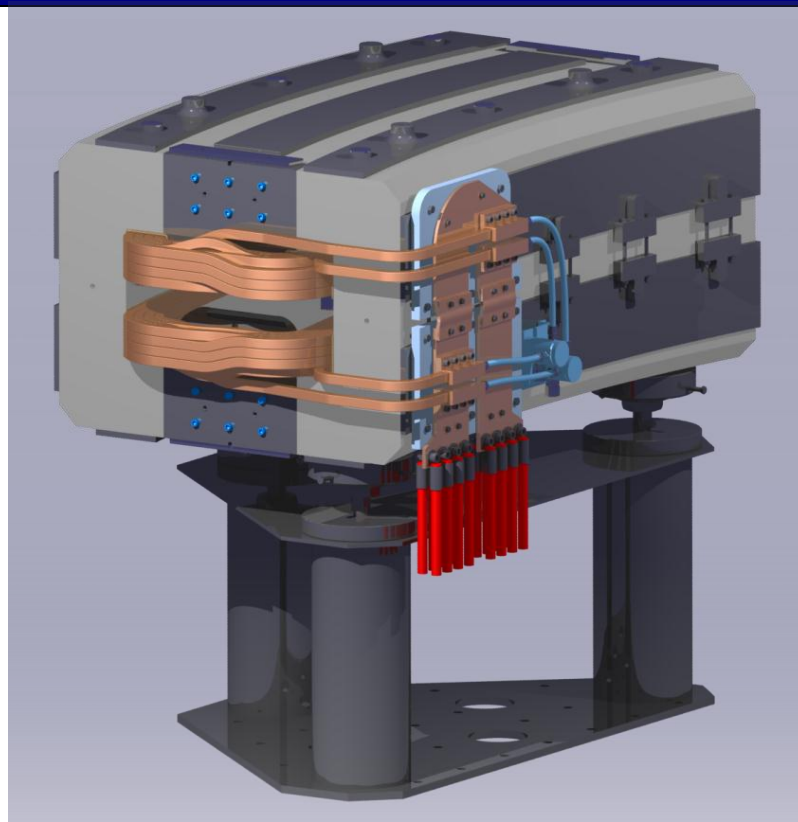




Status – accelerator, medicine

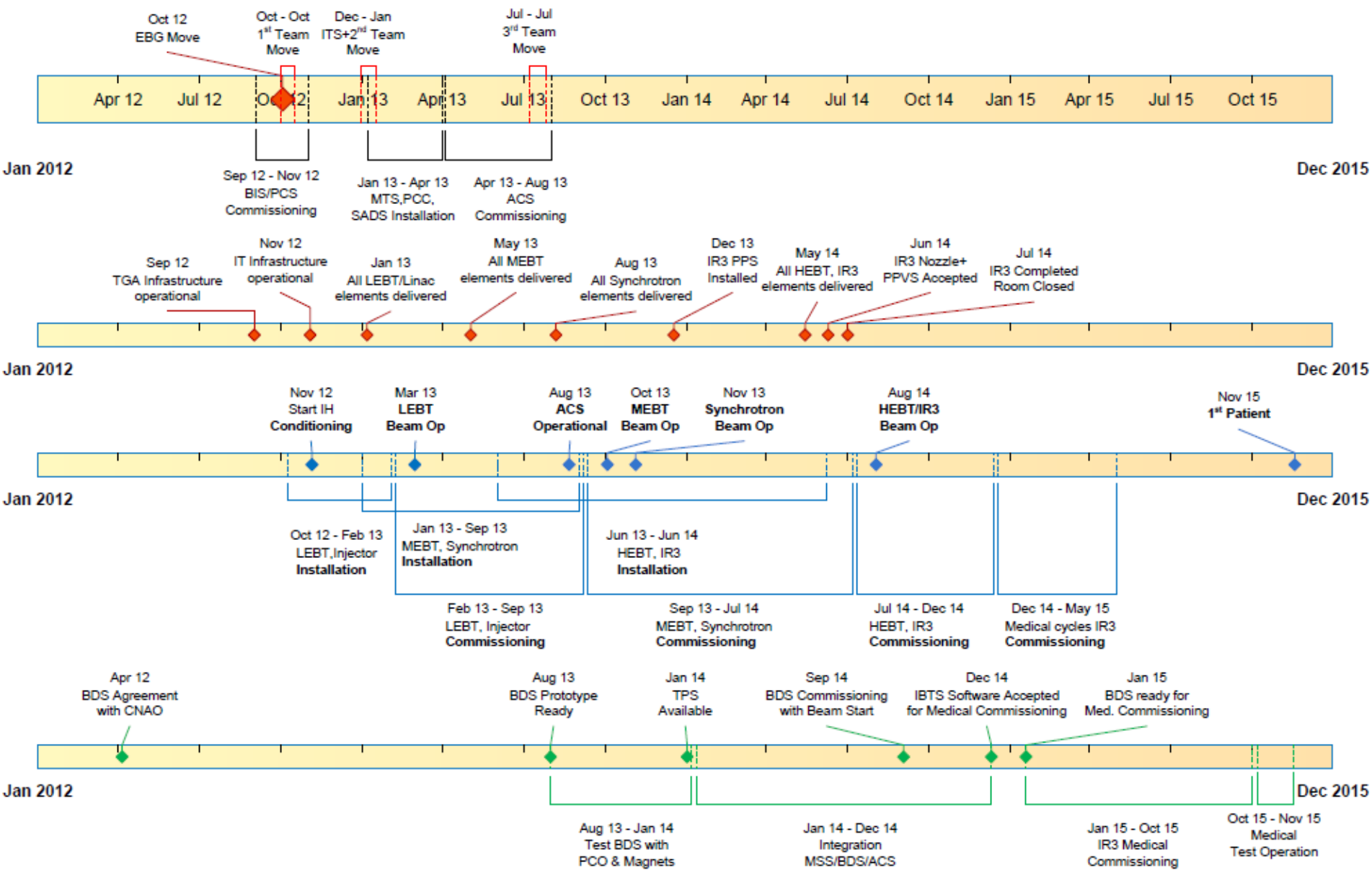
- **Accelerator:**

- Placed contracts (~70% of total)
 - Magnet steel 700 t (all magnets)
 - 3 ECR ion sources (identical units)
 - RFQ und IH tank
 - RF amplifiers for RFQ, IH, (de)buncher,
 - Main dipole magnets synchrotron
 - Quadrupole magnets HEBT, MEBT
 - Framework for controls system
 - Power converters





Project schedule





Conclusions

- **Project progresses is according to schedule and within budget**
- **Excellent collaboration with CERN in all accelerator areas**
- **Main activity will shift from CERN to Austria in 2013 for commissioning, further CERN involvement to be discussed**

