



TBL update



- Work performed during the shutdown
- Experimental program and plans for completion



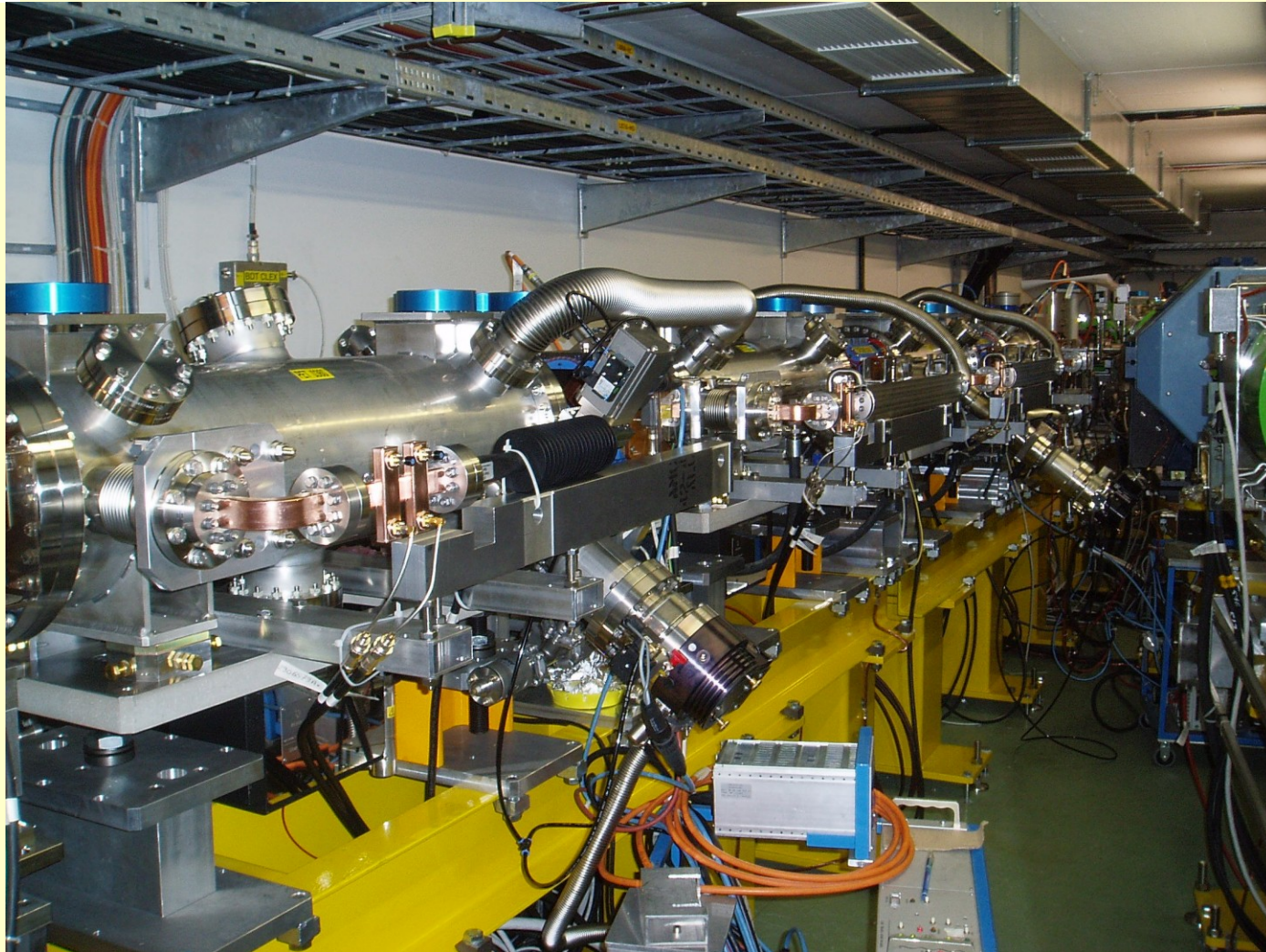
TBL shutdown work



- Installation of 3 more tanks, all equipped with damping material (1 CIEMAT, 2 from CERN with clean room assembly and installation)
- A rf components for high power test in particular ceramic load
- Modified all BPM analog electronics
- New segmented dump at the end of the line, slit dump in front of TBL (allows for time resolved measurements)
- New optical beam line for streak camera measurements



TBL in CLEX



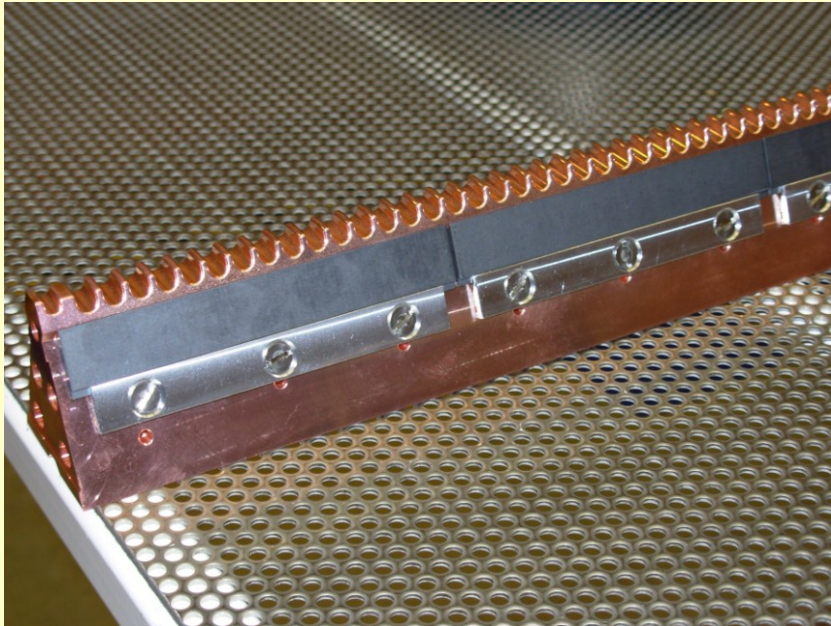
4 PETS tanks installed



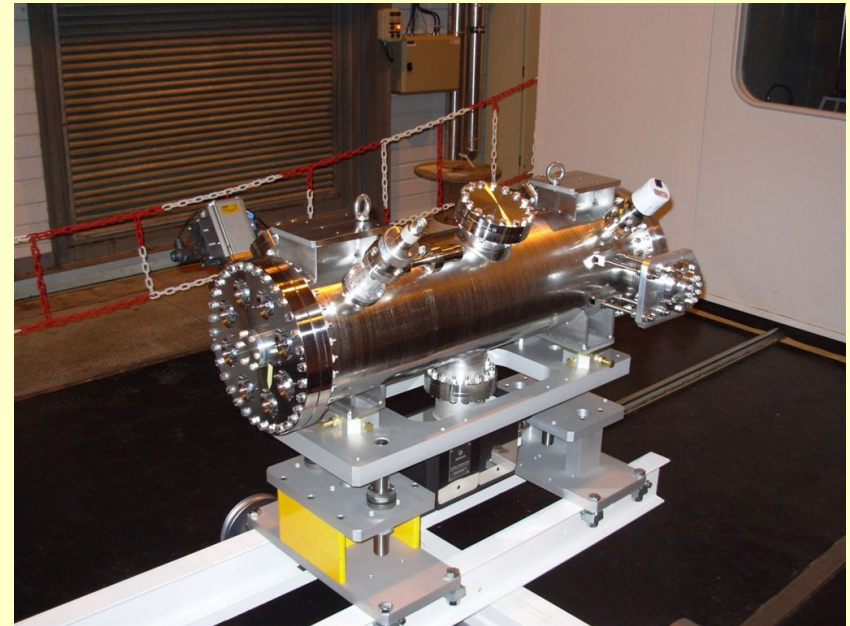
Status of series production



PETS bar with damping ceramic

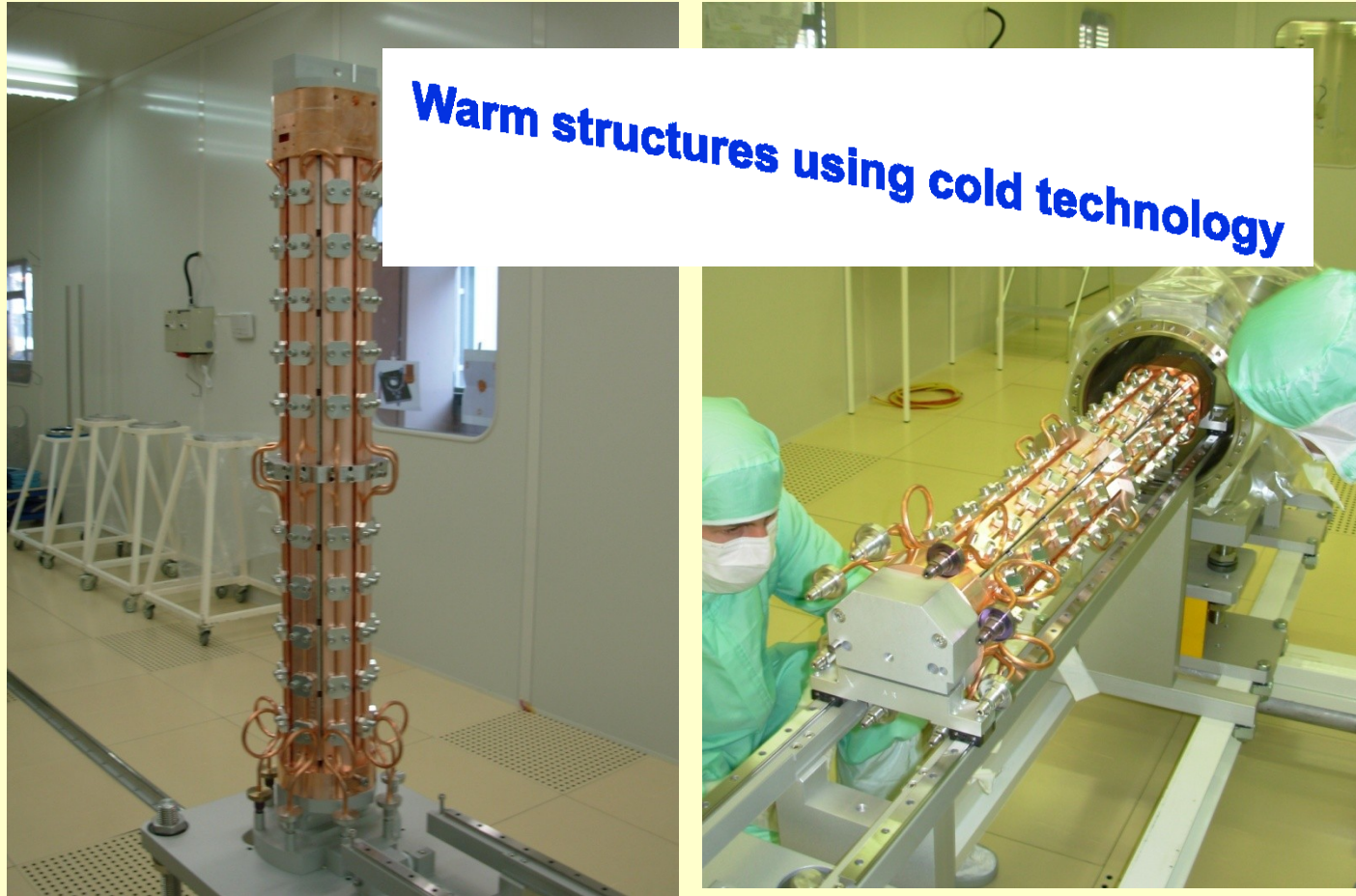


Finished tank out of the clean room





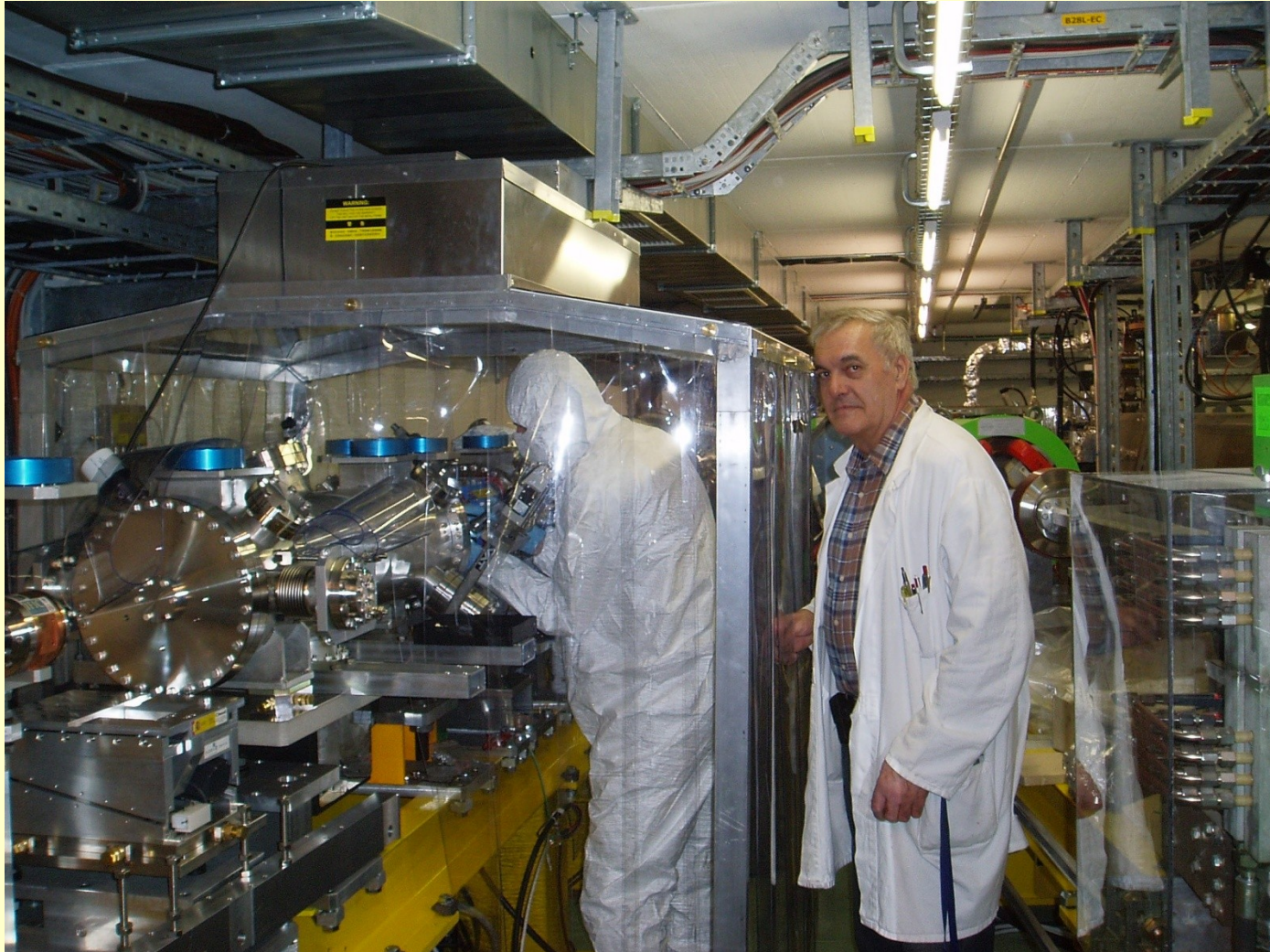
TBL decelerator production



**TBL PETS assembly in the SM18 clean room
(first out of 5 tanks)**



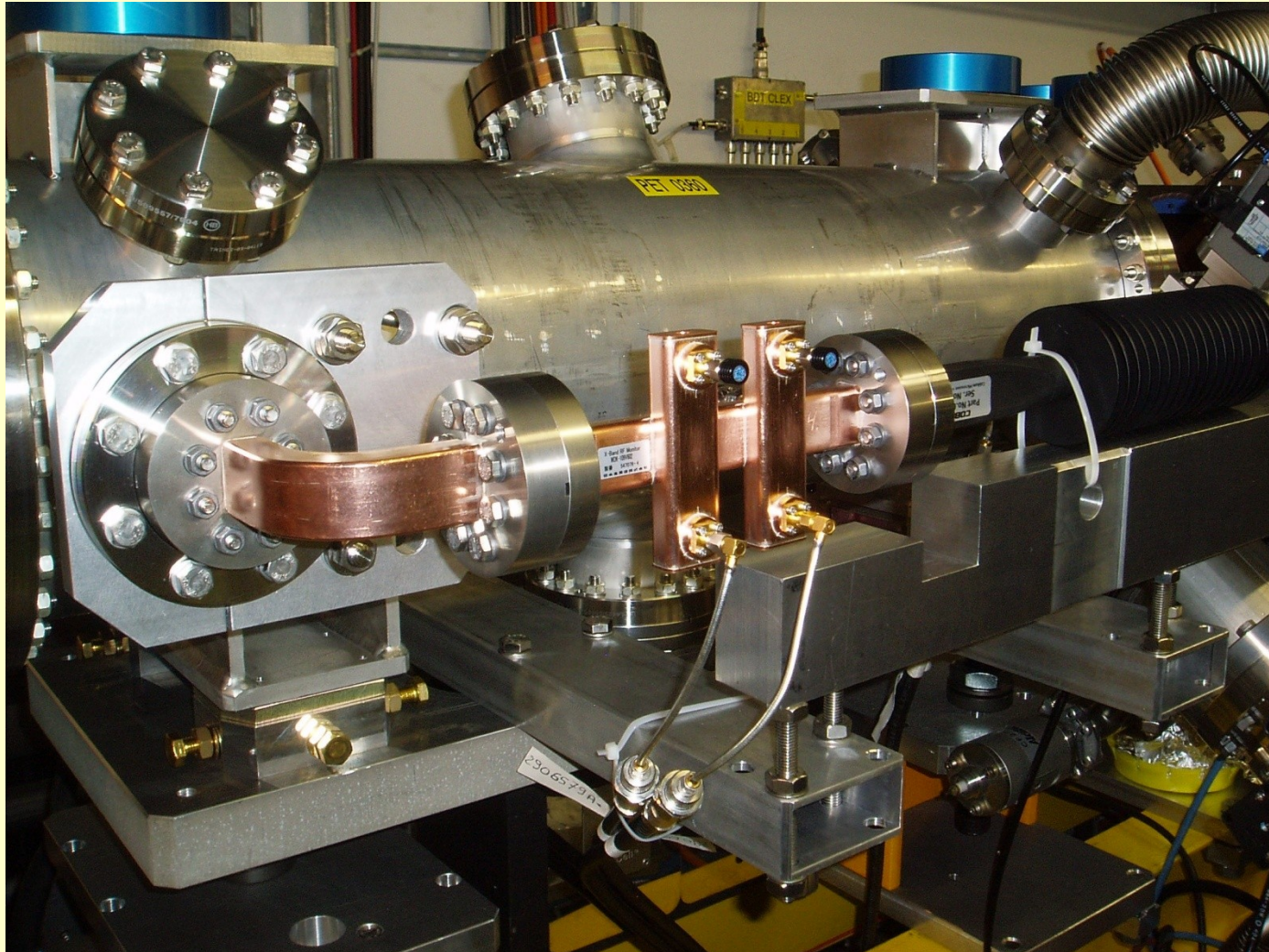
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Installation with local clean room, custom made at CERN



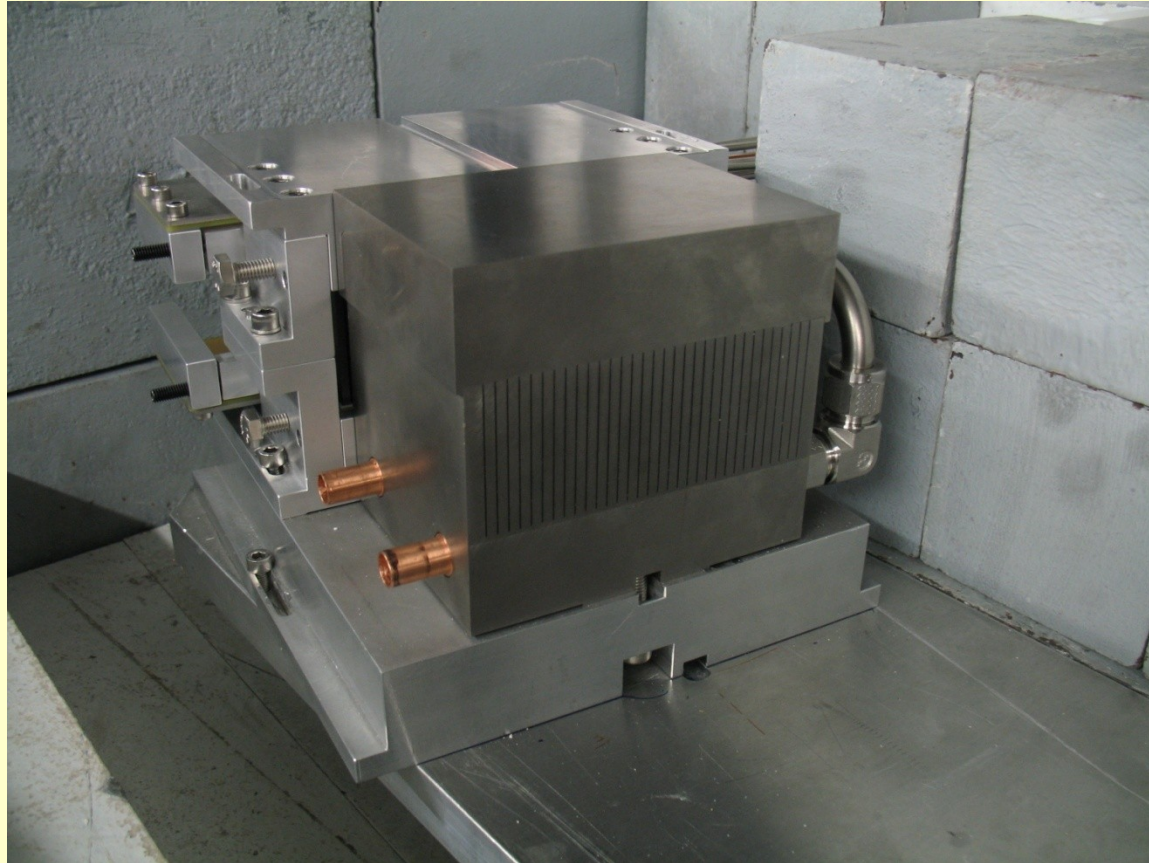
TBL in CLEX



New rf components



TBL in CLEX



New segmented dump for time resolved energy measurements



Experimental program



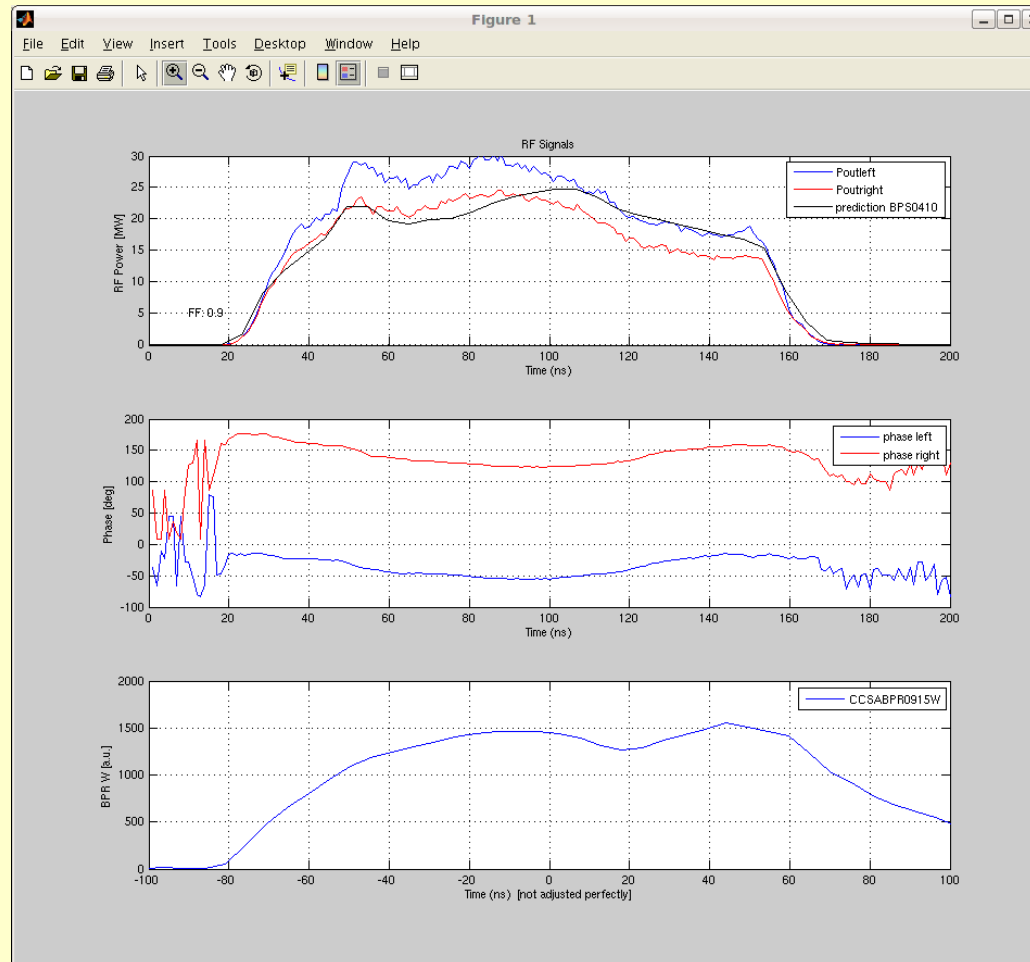
- ❑ Measure power production and energy loss in the beam for 4 PETS
(transverse phase space, time resolved longitudinal phase space, energy balance)
- ❑ Beam steering, transport and BPM resolution
- ❑ Try to reach >20 A; > 100 MW per PETS
- ❑ Test new rf components
- ❑ Test extended operation panel
- ❑ Redo power vs position measurements
- ❑ Measure power production stability



PETS, power production

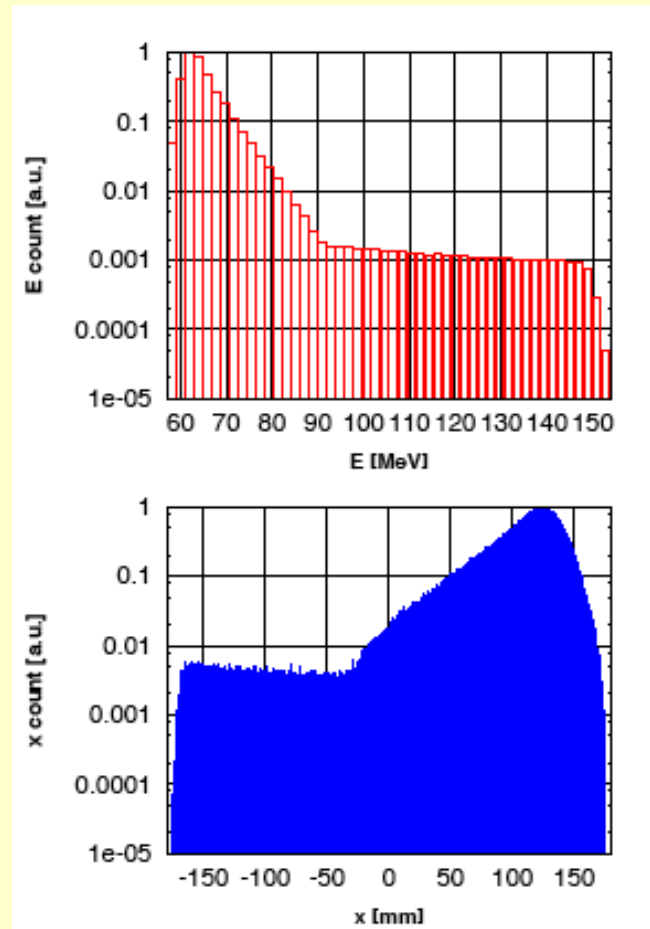
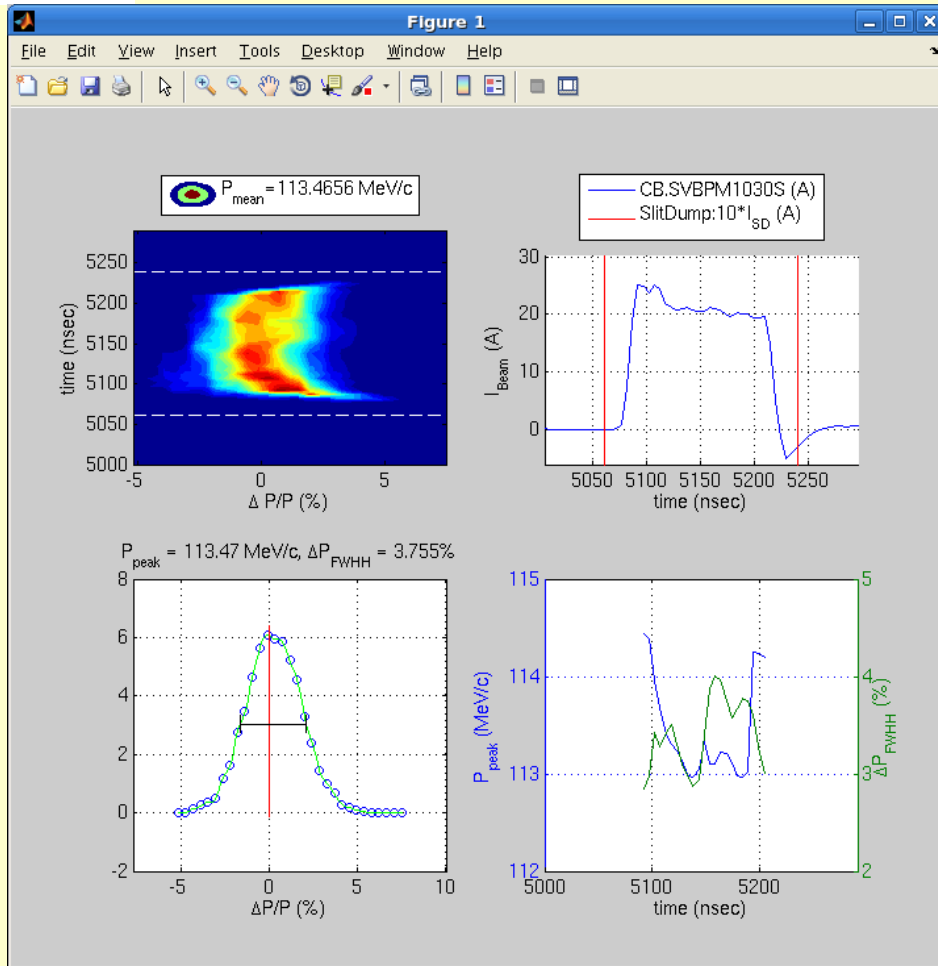


- 50 MW produced in agreement with theoretical prediction
- nice diagnostics to optimize the drive beam





Energy and Energy spread

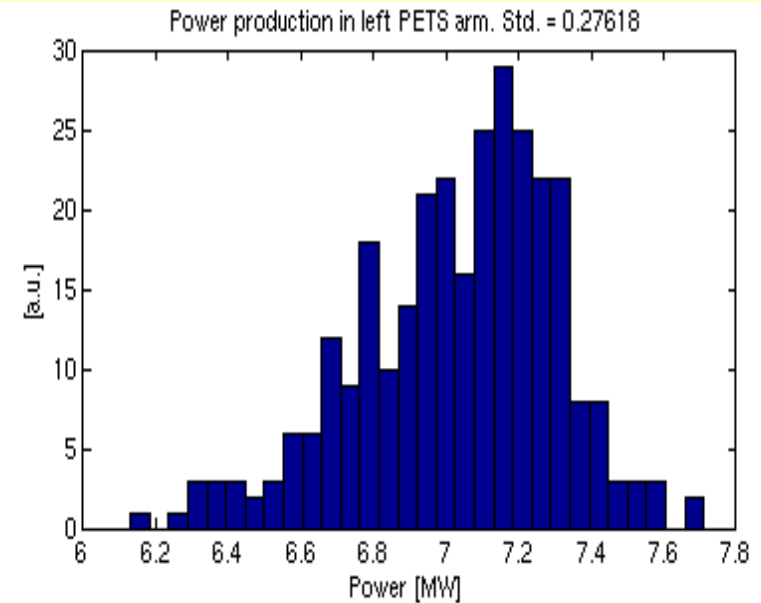
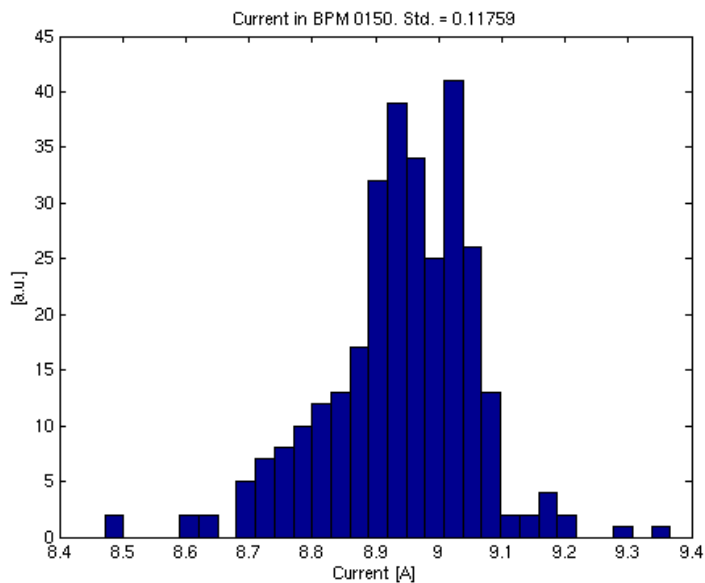


Simulation for 16 PETS

Time resolved energy spread with 50 MW in one PETS



PETS, power production stability



Current stability $\sim 1.3\%$; $P \sim I^2$

Measured current stability in the CTF3 linac 9×10^{-4}



Status of series production



- In the process to produce 8 tanks
3 by CIEMAT, 5 by CERN
- Pacing item are the couplers now
- At CERN we prepared for clean room assembly
- Aim to have 4 tanks installed in February (done),
8 tanks in summer 2011, 12 in 2012
- Recently decided to order 4 more tanks (in progress)
- India and BINP both made PETS prototypes as well
(option for second series)



Plans for completion and feasibility demonstration



- Demonstration with 8 in summer 2011,
>30% deceleration
- TBL with 12 PETS in 2012
- Perform full experimental program afterwards
- Develop modified tanks optimized for structure
conditioning



Conclusion



- Nice progress to get finally more tanks installed
- Interesting and impressive effort concerning clean assembly and installation (curious to see an effect)
- Diagnostic suite completed covering transverse and longitudinal phase space
- Keen on seeing high current beam through the line

Thanks to every body involved for the good work !