

AD highlights 2011

Lajos Bojtár BE-OP-AD

AD performance in 2011

- Stable operation with good intensities and deceleration efficiency, except:
 - A week was lost due to a vacuum leak in June
 - 40h lost due to power glitch recovery end of October
 - Several power cuts during the run with typically a day of recovery time
 - Last week of run lost due to PSB vacuum
- Statistics for 2011:
 - 4682 hours of physics
 - Beam availability:76% AD uptime:84%

Frequent problems

- Unstable stochastic cooling power supplies, they went down often or behaved strangely causing beam losses. Contact problems were found and fixed on a control card. This improved the situation but not fully solved. This power supply is foreseen to be replaced in the future.
- Longer than normal bunch. It varies between 160-250 ns
- Many radiation alarms during the run.

Frequent problems 2.

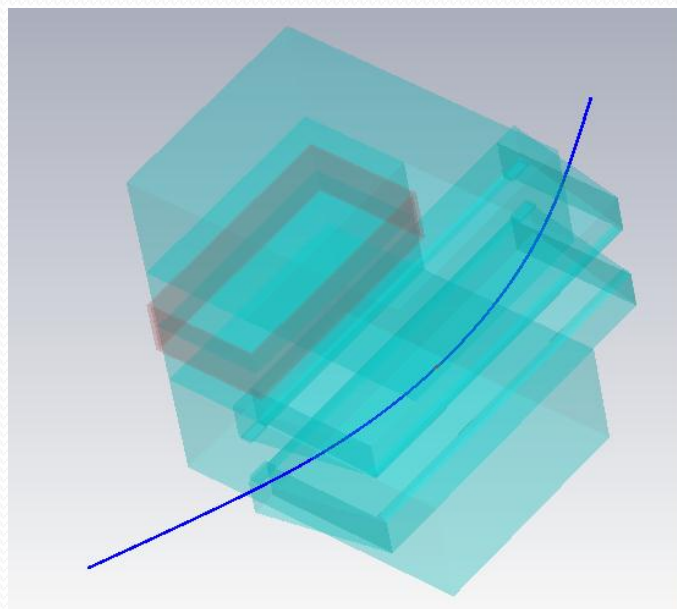
- Capacitors of the pulsed injection line elements still die time to time. Several of these power supplies will be soon replaced by modern types. They will not need to pulse every 2.4 sec ->energy saving.
- GFAS corruption happens time to time. It is easier to find it with Bruno's application. All GFAS piloted ring power supplies will be connected to OASIS soon.

Ejection line optics improvements

- Found two indications of false ejection line optics.
- Measured big discrepancy respect to the theoretical ejection line optics by kick response measurements.
- We found a strong remanent field inside a huge 2 m long magnet (BHZ8000) which can't be removed and no power supply was available to demagnetize it properly. Installed a high-mu metal shielding around the vacuum chamber inside this magnet poles.
- This solved the problem at this particular place, but that wasn't the end of the story...

Ejection line optics improvements II.

- Several magnet has big aperture and large bending angle -> huge end field focusing effects
- The end field model in MAD is far from reality in our case, but managed to take into account the end by building a 3D model of it and include the effects as kicks at the entry and exit of the magnets.
- We continue investigation during next start up...



New instrumentation

- Scintillator screens in the injection and ejection lines got new sensitive CCD cameras. Finally we can see antiprotons on the MTV's
- 3 MWPC's were replaced by new GEM detectors in the ASACUSA line. More to be replaced during this shut-down.
- GEM read out is much faster and they have also much better position resolution
- The measured profiles were wider than reality due to annihilation of antiprotons on the vacuum window, but improvement were made during the run.

Interesting MD results

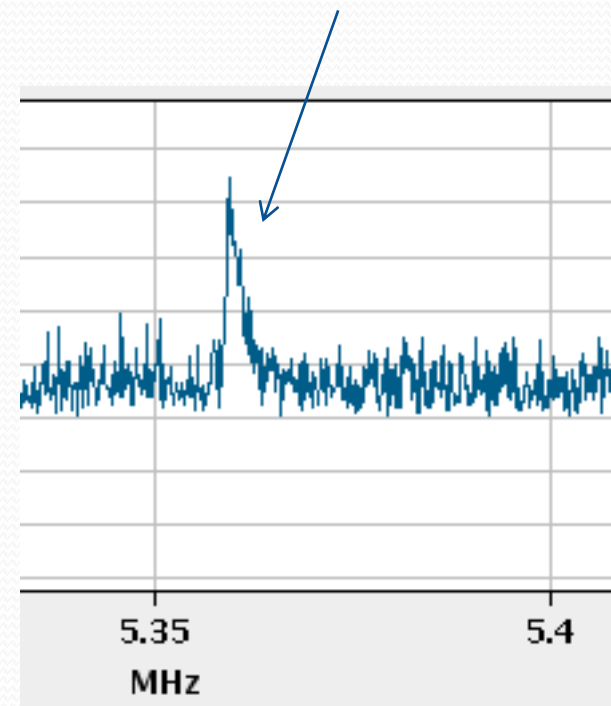
Validated the feasibility of tune measurements **on the ramps without noticeable losses.**

Previous attempts with the Schottky system caused too much losses to be useful in operation.

The feasibility of orbit measurement **on the ramps** was also shown. At the moment we can measure orbits only at the flat-tops.

These could help us a lot to achieve better deceleration efficiency.

Clearly visible betatron sideband



New experiment: AEgIS

- First test beam were taken by AEgIS this year.
- Does anti-hydrogen fall up or down ?

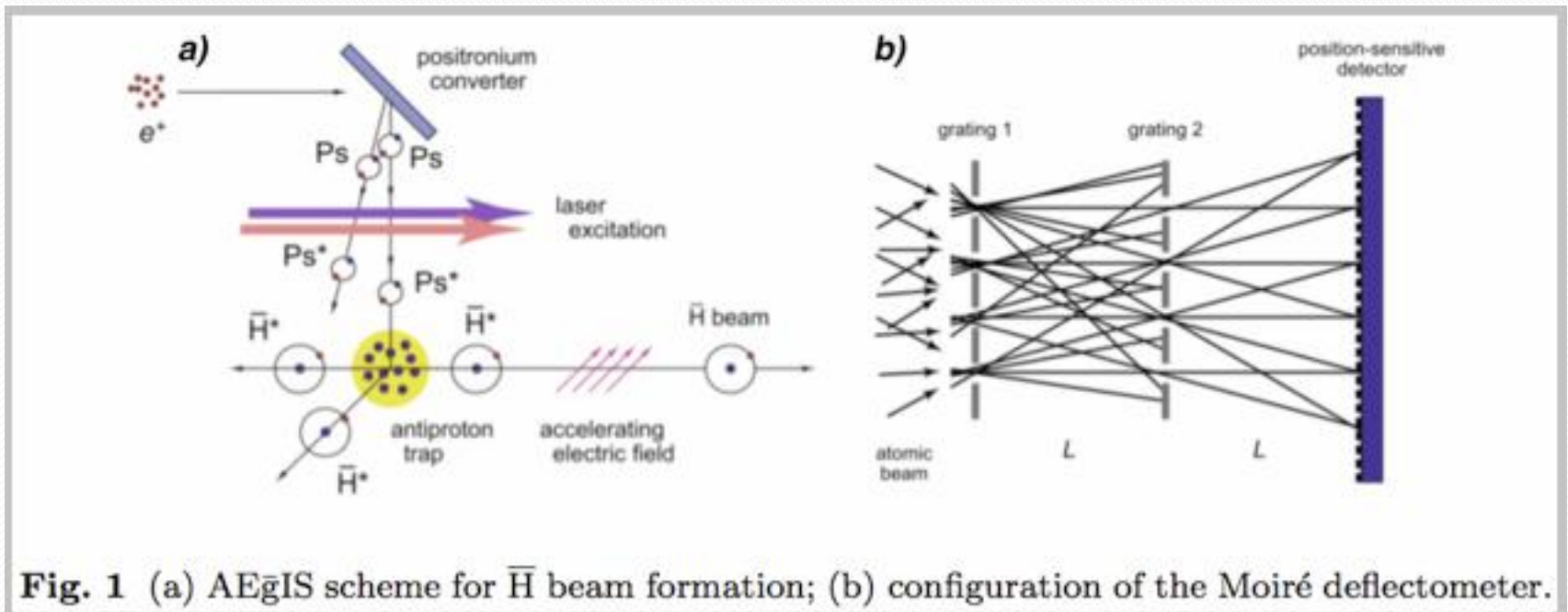


Fig. 1 (a) AEgIS scheme for \bar{H} beam formation; (b) configuration of the Moiré deflectometer.

We got a new team member





Thanks !