- Run 2 began with a short T<sub>1</sub> HD target (*not frozen-spin*) on Oct 27<sup>th</sup>.
- tuning NMR in the IBC with the Run 2 HD target  $\blacktriangleright$  short T<sub>1</sub>  $\triangleright$  P(H) = 1.4 % in IBC
  - H-NMR resonates at  $\gamma_{\rm H}/2\pi$  = 42.576... MHz/T
  - IBC in UITF 🗇 large bkg at frequency corresponding to running field of 1.1 T



• forced to switch plans and run NMR at 0.9 T

⇔ Change in running mode: expose HD at 1.1 T; periodically lower field to 0.9 T for NMR



- initial tests at 0.9 T ➤ substantial screening of NMR by Moller electrons
  - ⇔ would have made beam-on NMR at 1.1 T very difficult in any case

- re-established orbit at 9.7 MeV/c; Ferrara HALO detector array; mounted on the IBC nose
  - ⇔ beam centroid calculated from electron asymmetries (<u>Luca Barion</u> – Ferrara, Annalisa D'Angelo – Roma II; Tsuneo Kagya)
  - $\Leftrightarrow$  the most effective diagnostic for beam centering
    - rotates with the IBC for target loading







• Sombrero Raster: 18 – 39 KHz fundamental x 3 KHz AM



(Bill Gunning)

⇔ Sufficiently uniform for HDice tests

• *HARP* installed in front of IBC

- raster magnets separated in Z  $\Leftrightarrow$  V/H >1 at the HARP for a circular beam on target



- Rogowski coil : requires modulation on the beam - still under study
- Beam-limiting apertures installed

#### Goals for next week:

- Booster was tripping frequently over the weekend  $\Leftrightarrow$  RF group to investigate
- Feedback loop to be added to laser power to stabilize current
- verify energy deposition in target by measuring temperature rise at a series of currents
- study NMR screening effect
- set FSD detectors in prep for Run 3