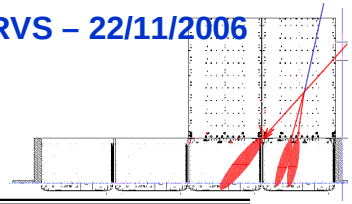
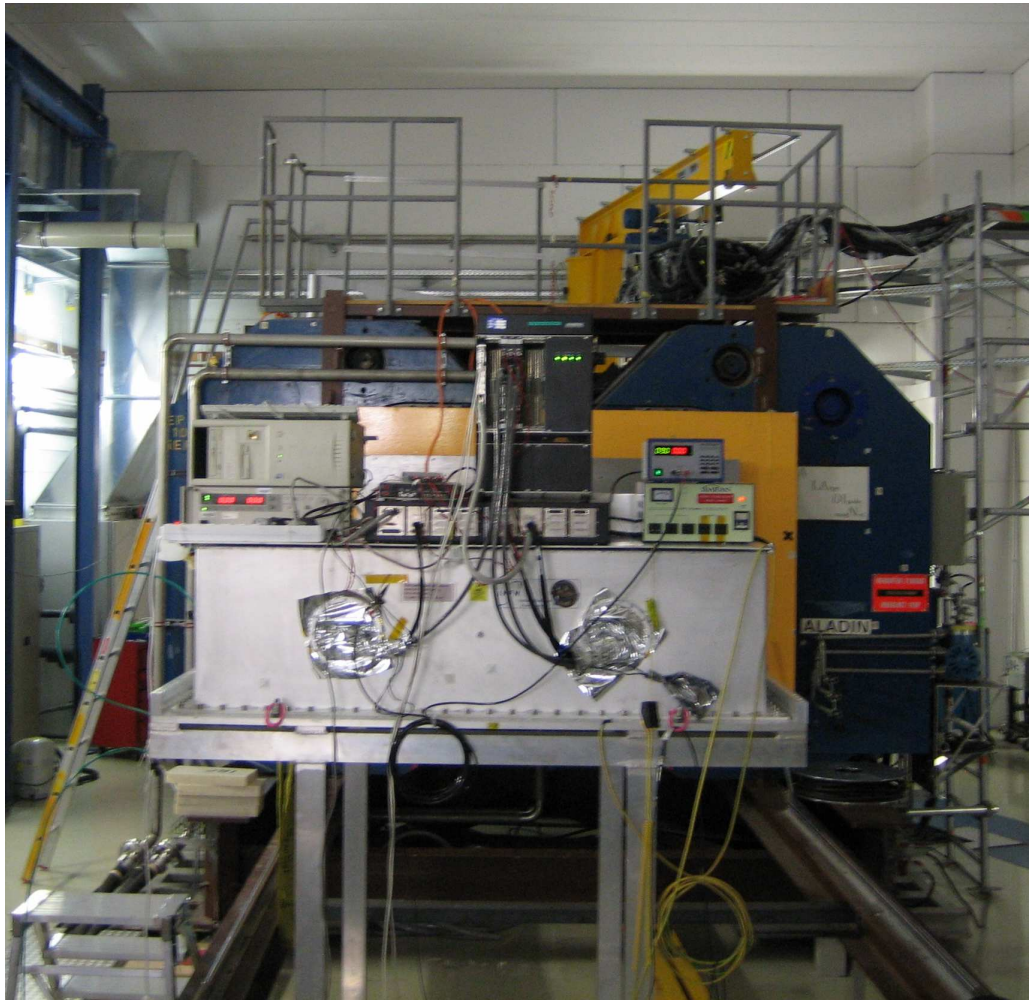
GSI Beam Test Report



A very efficient test as promised

- Full installation in 1.5 days
- 32 hours of run
- Full dismantle in few hours
- Minimal team of 13 people on site
  - installation, run, quick-analysis
- Large support from people at home
  - Pipeline
  - support changes in recon
  - Trend hardware status
  - Data analysis
- Large support from GSI people
  - Continuous presence to grant required changes in beam structure (ion, rate, position)



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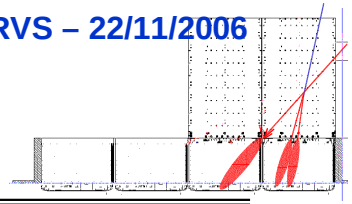

- Data taken in all required configurations – 4.3M good events
  - beam
    - rate scan (10-1000Hz/cm^2)
    - C beam at 1.5GeV/n
    - Xe beam at 1GeV/n
    - Xe beam on target to produce secondary ions
  - CU
    - Always 4-rng on CNO + periodic trigger
    - Both ZS and NZS
    - External trigger
    - Beam at 0, 30, 60 degrees
    - Different settings of TKR hit buffers to study FIFO full events
  - Special measurements
    - Charge injection with beam on
    - scintillation signal in CAL CDE
    - Missed the energy scan for a problem with accelerator

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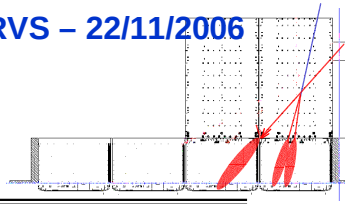

- **Preliminary interesting results**
  - ACD CNO triggering capabilities + multiple engines demonstrated
  - CAL quenching factors confirm results from 2003 run (Thierry)
  - TKR cluster size ~6, > than expected from spice simulations (Leon)
- **Caveat for analysis**
  - Reject periodic trigger events, unless interested in CAL and ACD pedestal
  - Reject residual CR contamination, especially at low rates
  - When running parasitic to therapy, high rate at beginning of spill for a few spills after getting beam to our line
- **For selection of good runs and their conditions see** https://confluence.slac.stanford.edu/display/BeamTest/GSI+program