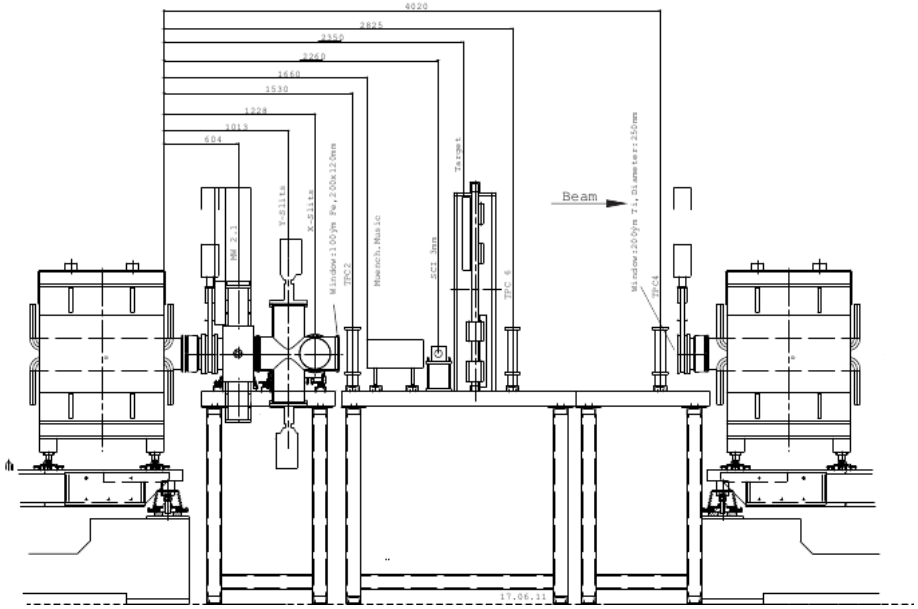
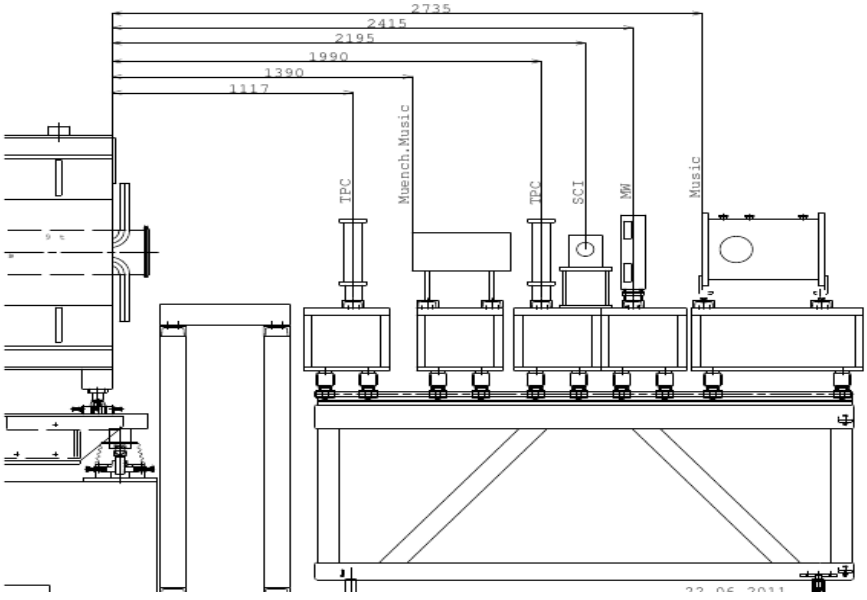
Status report after S364

(20-27 June 2011)

Beam: 124Sn. 112Sn @ 1000 MeV/u (1200, 700, 400 MeV/u)
max intesities: ~ $3*10^8$ for 124Sn, $6\text{-}7*10^7$ / spill for 112Sn
physics: isobaric charge exchange reactions, quasi elastic + delta excitation, energy and target dependance of delta excitation cross section

TA: SIS window, SEETRAM, Target - TS2ET2 (Be-4 g/cm^2, Cu-373 mg/cm^2, C-103,197,608, 978mg/cm^2, PE-95mg/cm^2, Pb-954mg/cm^2)
S1: windows, S1 scintillator (3mm)
S2: X slits, Fe window, TPC 2, TUM MUSIC, TPC 3, S2 Scintillator (3mm), Target (HFSET4_S), TPC 4, Ti window
S4: window, TPC 5, TUM MUSIC, TPC 6, S4 Scintillator (5mm), MWPC, OLD MUSIC





Fragment settings:

TA → S2 → S4

raction at TA:
124Sn → 124Sb → 124Sb
124Sn → 124In → 124In
112Sn → 112Sb → 112Sb
112Sn → 112In → 112In

raction at S2:
124Sn → 122Sn → 122Sb
124Sn → 120Sn → 120Sb
124Sn → 120Sn → 120In
112Sn → 110Sn → 110Sb
112Sn → 110Sn → 110In

DETECTORS

Current grids

CG01	100V
CG02	100V

MUSICs detectos

3 MUSICs were used, 1 TUM at S2 area, 1 TUM and 1 OLDM at S4 area. TUM@S2 was filed with CF4 gas, both MUSICs at S4 were filled with P10 gas. For OLD MUSIC preamps type CSTA1 were used. All MUSICs worked well.

MUSIC chamber at S2 (TUM)

Cathode	-8000 V

MUSIC chamber at S4 (TUM)

Cathode	-4000 V

MUSIC chamber at S4 (OLD)

Anode	=+650 V
Cathode	-4200 V

Scintillators

Plastic scintillators were placed at S1, S2 and S4. The obtained TOF resolution with 124Sn beam was: TOF(S2-S1): sigma= 36.4 ps, TOF(S4-S2): sigma= 34.1 ps
At S1 scintillator from S322 experiment was used, 5cm wide

Plastic	PMT voltage
SCI-11U	1500
SCI-11D	1500
SCI-21L	1600V
SCI-21R	1600V
SCI-41L	1600V
SCI-41R	1600V
SCI-41U	1600V
SCI-41D	1600V

TPCs

3 TPCs were placed at S2 (1 infront of the secondary target and 2 behind) and 2 TPCs at S4. P10 gas was used. TPC 23 (the last at S2) had 8cm drift, the rest had 6cm drift. All TPC were calibrated with scintillator grids and worked without problems. Calibration was done using software coincidence of calibration scintillator with master trigger using TDC in slot 9 of TPC crate.

Chamber	HV Anode	HV Drifts
TPC 22	-830	2400
TPC 23	-770	2400
TPC 24	-810	2900
TPC 41	-810	2400
TPC 42	-810	2400

Secondary target ladder at S2 (HFSET4_S):

target	thickness	thickness
C	5 mm	916.28
C	8 mm	1460.44
PE	7.5 mm	693.32
PE	12.09 mm	1132.96

Electronics: Standard electronics was used, based on S395 setup, Old MUSICs signals were connected in FRS crate, not in TPC crate as in previous experiments. TDCs and ADCs fot TPCs were not started/gated with common start/gate but divided into S2 ADC/TDC and S4 ADC/TDC.

S2 ADC/TDC were gated/started from S2 plastic signal and S4 ADC/TDC from S4 plastic signal.

DAQ: prespec DAQ was used, based on previous S395 DAQ

Go4: not reliable ID plots in online version → TOF was not calibrated during the experiment

technical problems: targets at TA were shifted by 5mm according to Current Grids, Target ladder 1 was stucked and could not move, Ionisation chamber at TA did not work