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last report: 9-Oct-2015

Memo for 2015 fall runs impact & s21(kondo)

- Standard detectors
 - status
 - tuning memo

- Gas flow / gas bottles
 - BDC1, (KDC240), BDC2, FDC1 : i-C₄H₁₀
 - $P(\text{i-C}_4\text{H}_{10}) = 50$ torr, 13-Oct-2015~
 - FDC2 : He+ CH₄ (60%)+ 2-propanol (0.4%), $I \sim 0.16$ L/min
 - 10/15~12/6 (52 days) : ~ 2.4 bottles necessary < 3 bottles(available)
 - ICF(ICB) : P10, $I \sim 0.15$ L/min
 - 10/15~11/4 (20 days) : ~ 0.7 bottle necessary > 0.4 bottle(available)
 - **bottle change necessary during the run.** one more bottle is coming (**when?**)
- ASD threshold
 - $V_{\text{th}} = -0.4$ V (BDC1,2, FDC1), -0.8 V (FDC2)
- HV conditioning, 13-Oct-2015~
 - BDC1,2(400/450V), FDC1(500/550V), FDC2(2000V), ICB(750V), ICF(800V)
- Shaping time
 - ICB (ST=1, 0.5 usec σ), ICF (ST=3, 2 usec σ)
 - ICB : **noise** still exists
- misc
 - KDC240 : $P(\text{i-C}_4\text{H}_{10}) = 50$ torr, $V_{\text{th}} = +0.4$ V
 - PDC's + ref. DC's : P10, work still left

- SBT

- 0.2mm-thick EJ200 × 2, 130mm x 130mm, in vacuum
 - covered by 4 sheets of 12um Al-pp, +125um Kapton exit window, +?um Al foil
- V_{th} (Phillips 710)~ -20 mV(present), w~ 40nsec
- Phillips 772 Amp, 740 Fi/Fo : DC offsetは大分前に合わせた(要再確認)

- TED

- 800mm(H) x 400mm(V), CsI(pure) x32
- logic: splitter → LRS4413(V_{th} = -15mV, w~100nsec) → 300nsec logic delay x2
 - 片側がCAEN Q-ADCなので若干offsetがつく
- analog : splitter → 500nsec delay (RG58) → 10db att.(3.16^{-1})
 - attenuation (pulse height) : f(delay out)~0.625, f(att. out)~0.2
 - Q-ADC: gate W= 600~800 nsec

- HODF24

- booster cables x16 : connected to HF01~HF08 (high-rigidity side)
- preparation roughly finished

- $\Delta E(\text{beam})$
 - $^{79}_{34}\text{Se}(210) : ^{79}_{34}\text{Se}(120) : ^{93}_{40}\text{Zr}(215) : ^{93}_{40}\text{Zr}(120) \sim 1.0:1.44:1.36:1.98 \sim 1 : 1.4 : 1.4 : 2.0$
- SBT
 - HV : constant
 - Amp out@B3F $\sim 0.8\text{V}$ for $^{93}_{40}\text{Zr}(120)$
 - $\sim 0.4\text{V}$ for $^{79}_{34}\text{Se}(210)$
 - $V_{\text{th}}(\text{disc}) = -20\text{mV}(\text{present})$ or higher ($\sim 50\text{mV}$) 信号を見て決める?
 - $\langle A \rangle$
 - $V = 0.8\text{V} \sim 1.6\text{V}$
 - att. = 6+0, 6+3, 6+3, 6+6 dB $\rightarrow \langle A \rangle_{\text{att}} = \sim 0.4\text{V}$ ~constant
 - $V_{\text{th}}(\text{low/high}) = \text{constant}$
 - $V_{\text{th}}(\text{low}) \sim -0.2\text{V}$? (信号を見て決める)
 - $V_{\text{th}}(\text{high})$: no use ? \rightarrow LE mode?
 - timing adjustment into CAMAC ADC, TDC, VME ADC, TDC including S3, S7 etc
 - おまかせします(お願いします)
 - time difference between 100 & 200 MeV/A : $\sim 55\text{nsec}$ (F7), $\sim 120\text{nsec}$ (F3) ?

- BDC1,2, FDC1, FDC2
 - HV, pressure = constant ($\because \Delta E_{\text{ratio}}=1\sim 2$, beam rate < 10kHz)
 - HV adjustment
 - rough HV adjustment of BDC's for beam focussing to F13
 - $HV_{\text{BDC}}(\epsilon=50\%) \sim 320\text{V}$, $HV_{\text{BDC}}(\epsilon=100\%) \sim 380\text{V}$? for $^{79}_{34}\text{Se}(210)$
 - fine HV tuning after trigger timing (nebula etc) is fixed.
 - use $^{79}_{34}\text{Se}(210)$, & check $^{93}_{40}\text{Zr}(120)$
 - trigger= "mixed" beam, not each isotope
 - for $^{79}_{34}\text{Se}(210)$
 - FDC1 : $HV(\epsilon=50\%) \sim 380\text{V}$, $HV(\epsilon=100\%) \sim 450\text{V}$?
 - FDC2 : $HV(\epsilon=50\%) \sim 1450\text{V}$, $HV(\epsilon=100\%) \sim ?$
- ICB
 - signal monitor B3F \rightarrow B2F : gate $\times 1$, signal $\times 2\sim 3$
 - gain : $\times 2$ difference に注意して決める.
- ICF
 - ? why resolution was extremely bad during Sasano-exp.
 - shaping time : $ST=3(2 \text{ usec } \sigma) \leftarrow ST=2(1 \text{ usec } \sigma, \text{ Sasano exp})$
 - gain : $\times 2$ difference に注意して決める.
 - HV dependence :
 - signal monitor B3F \rightarrow B2F : gate $\times 1$, signal $\times 4$ (11,12,13,14)

- TED

- analog delay= 500nsec : OK ∴ beam is stopped in HODS @100MeV/A
- signal monitor B3F → B2F : gate ×1, signal ×8 (13,14,15,16, 21,22,23,24)
- gate width = 600 (or 800) nsec
- degrader
 - ΔE in HODS: $\Delta E[^{79}_{34}\text{Se}(200)] \sim 35\text{MeV/A}$, $\Delta E[^{93}_{40}\text{Zr}(200)] \sim 40\text{MeV/A}$
 - 質量分離には不足だが、武内さんの要請により実験中はdegrader無し
 - detector tuningの時間に、
Al degrader thickness= 0 mm, 1 mm(-20MeV/A), 2 mm(-40MeV/A), 3 mm(-60MeV/A)
のdataを取っておきたい
- magnet sweep @200MeV
 - 回路調整終了後にして欲しい。現案は回路調整の前になっている
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- misc

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