AT-TPC campaign

https://www.rcnp.osaka-u.ac.jp/Divisions/np1-a/pukiwiki/?AT-TPC+campaign

実験別情報

Collaboration †

Approved Experiments †

Exp	Spokes person	Primary beam	Reaction	Approved days	Proposal
Commission	H.J. Ong, T. Kawabata, W. Mittig	18O?			en_proposal.pdf proposal_attpc-campaign2023.pdf
E510	B. Dominguez, D. Suzuki, Y. Ayyad	22Ne @50 MeV/u	17C(d,p)	5.5 days	e510_proposal.pdf
E534	H.J. Ong, D. Suzuki, B. Dominguez	18O @60 MeV/u	17N(d,3He) @45 MeV/u	4 days	e534_proposal.pdf
E535	C. Santamaria, A. Macchiavelli, H.J. Ong	18O @60 MeV/u	13,15B(d,3He) @33 MeV/u	6 days	e535_proposal.pdf
E546	T. Kawabata	12C @~~50~~ 70 MeV	12C+12C --> 24Mg* --> 6α	6 days	e546_proposal.pdf
E565	J. Chen, D. Bazin	18O @60 MeV/u	12Be(d,p)	6 days	e565_proposal.pdf
E581	J. Lou, Y. Ye	18O @60 MeV/u	11Be(d,3He)	5 days	e581_proposal.pdf e581_pac_answer.pdf

- PAC results: PAC_results.pdf

Google Drive †

- https://drive.google.com/drive/u/1/folders/1X92l1QzWWVbAjU775b2L0s_Bz3ud4rnJ
- Travel schedule
- Schedule of Japanese collaborators for install
- Shift of the beam time

Beamtime

- June: RCNP_MT-Calendar_202506_rev2.pdf

Zoom room

- https://us02web.zoom.us/j/85490179017?pwd=BUKGmPN72ArgrHujTzGtGo7PqoteAC.1
- ID: 854 9017 9017
- PW: BeCMg

schedule

- 18O beam (60 MeV/u): 2025.06.19--07.18(9:00)
  - 06.19--06.24: Beam tuning
  - 06.24--06.25: AT-TPC Commissioning
  - 06.26--06.29: E534 (17N)
  - 06.30--07.05: E535 (13B, 15B)
  - 07.06--07.11: E565 (12Be)
  - 07.12--07.15: E581 (10Be, 11Be)
- 22Ne and 12C beamtime will be in autumn.

Implemented

- EN Commission
  - 06.04--06.05: we had 18O beam at EN course.

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Accelerator commission with 18O 60 MeV/u
 05.29--06.03: Acceleration
 06.04--06.05: We may have beam at EN course if beam intensity is more than 100 pnA.
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Operation

- About ATTPC and F0, F1 etc... of EN course
- How to operate in the preparation and the beam time

Optics

- Q4 Calculator.xlsx
- optic_para.pdf

orbit

- orbit4.f
- orbitin_triple_f3pl_xyx.txt

EN beamline DAQ

Preparation

Layout of the setup

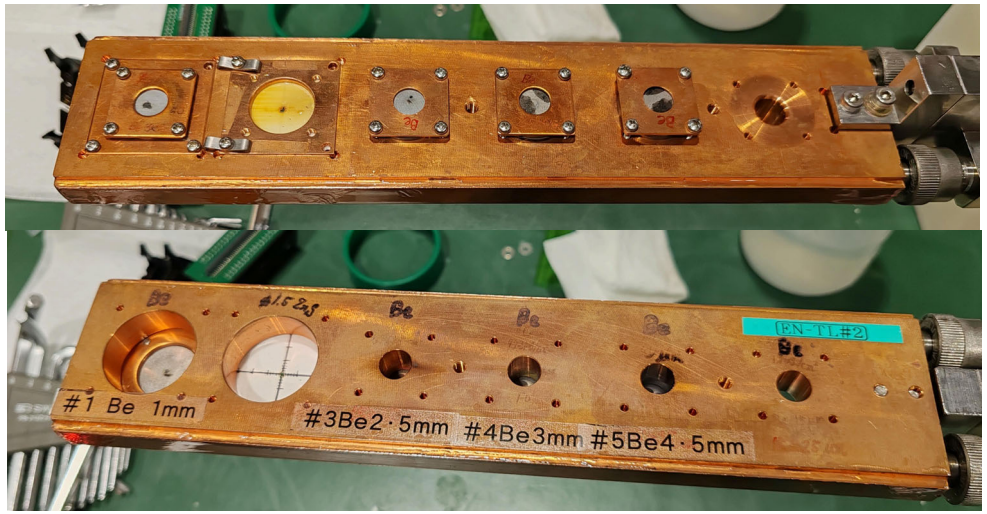
- beamline_layout.pdf

Installation

- Start on 2025.05.12.
- Memo by Daniel: Preparations.pdf

F0

- Target ladder movement test 2025.05.31 (Done)
- F0 upstream viewer movement test 2025.06.02 (Done)
- Mount Be targets 2025.06.02 (Done)
  - F0 target back:
  - F0 target front:



- Replace light bulb 2025.06.02 (Done)
- Check cameras 2025.06.02 (Done)
- Repair soldering for motor cables for target ladder 2025.06.16
- Changed to the web camera

F1

- Prepare curve and flat Al degrader for first EN commissioning (Done)

- F0 target back: 
- Replace light bulb 2025.06.02 (Done)
- Check camera 2025.06.02 (Done)
  - Change to the web camera?

Degrader

- Prepare the curved degrader for this experiment.

Exp	Thickness[mm]	Length (design)[mm]	Length (maching)[mm]	actual thickness (mm)	Angle (mrad)
E510 (17C)	1.5	158.31		1.58	1.11
E534 (17N)	1.5	155.68		1.56	0.76
E535 (13B)	2.5	157.12		2.62	1.58
E546 (15B)	2.5	154.69		2.58	1.04
E565 (12Be)	3.0	164.84		2.75	3.30
E581 (11B)	4.0	176.39	(-3.79)	4.12	8.21

- 2025.06.02 install curved with pairallel Al Degrader
- 2025.06.19 measure the thickness and weight of flat degrader to calculate the surface density

Exp	Measure thickness[mm]	Equivalent thickness[mm]	Areal density[mg/cm2]
E510 (17C)	1.65	1.5	405.30

E534 (17N)	1.65	1.5	405.30
E535 (13B)	2.60	2.5	675.50
E546 (15B)	2.60	2.5	675.50
E565 (12Be)	3.45	3.30	891.66
E581 (11B)	4.35	4.12	1113.22

- "Measure thickness"represents the thickness of flat degrader measured using the vernier caliper; "Equivalent thickness"represents the equivalent thickness of the degrader at the density of pure aluminum(2702 mg/cm3)
- Currently, a 4mm curved degrader and a 4.1mm flat degrader (E581) are installed at F1, and degraders of other thicknesses have been prepared but not yet installed. The existing aluminum of different thicknesses are 0.1mm, 0.2mm, 0.5mm, 1mm and 2mm, which can be freely combined

F2

- Signal check for 100-um-thick plastic scintillator 2025.06.02 (Done)
- Measurement of Si with triple alpha source 2025.06.02 (Done)
- Check F2 slit movement (Done)
- Prepare and check camera: http://maiko-cam02.rcnp.osaka-u.ac.jp/ (ID:quser, PW:rcnpXXX)

F3

- Signal check for 100-um-thick plastic scintillator 2025.06.01 (Done)
- Measurement of Si with triple alpha source 2025.06.02 (Done)

Production Target & Degrader Info, etc

Experiment	F0 Target						F1 Al Degrader					Remarks
	1	2	3	4	5	6	1	2	3	4	5	
AT-TPC campaign	Be 1.00 mm (1.12mm)	ZnS(F0 Viewer with 1.5 phi hole)	Be 2.50 mm (2.82mm)	Be 3.00 mm (3.44mm)	Be 4.50 mm (5.08mm)	empty	empty	empty	4.00 mm	4.00 mm	ZnS (F1 Viewer)	June, 2, 2025
	Position on "endev" (mm)						Position on "endev"(mm)					

-0.542	-40.819	-80.223	-120.414	-160.174	-200.424	233.8	174.3	111.3	55.3	2.8

Magnets and NMR

- Check NMR operation 2025.06.02 (done)
- Check set and actual current of Q4U, Q4M and Q4D (2025.06.03)

Online Analysis

- Check Go4 offline analysis 2025.06.03 (done)
- Check mapping 2025.06.03

Optics calculation

- #m5ff869b

GAGG

- Kawabata-san group: 25, Jin-san group:16
  - Kawabata's GAGG is 18 mm×18 mm×20 mm
  - Jin's GAGG is 20 mm×20 mm×25 mm
- Check the signal and look at the spectrum

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First test (use Jin-san's 16 GAGG)
Use CAEN V1730, HV:400 V, source: 137Cs
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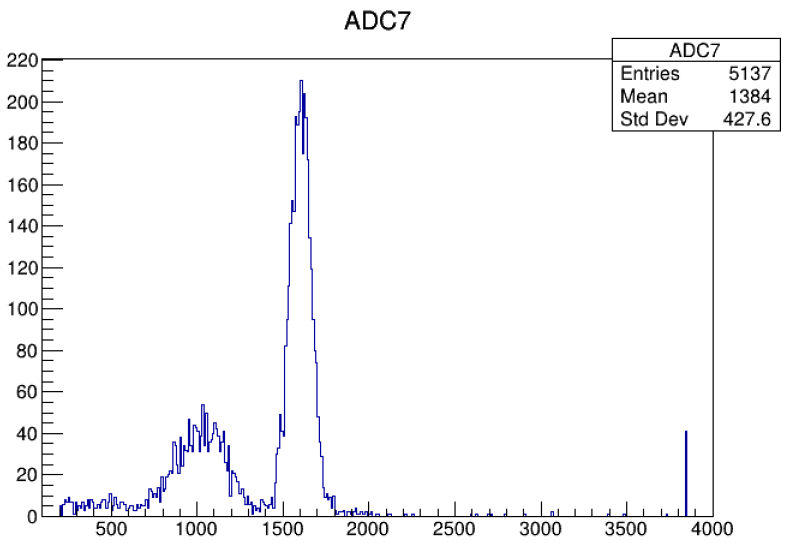
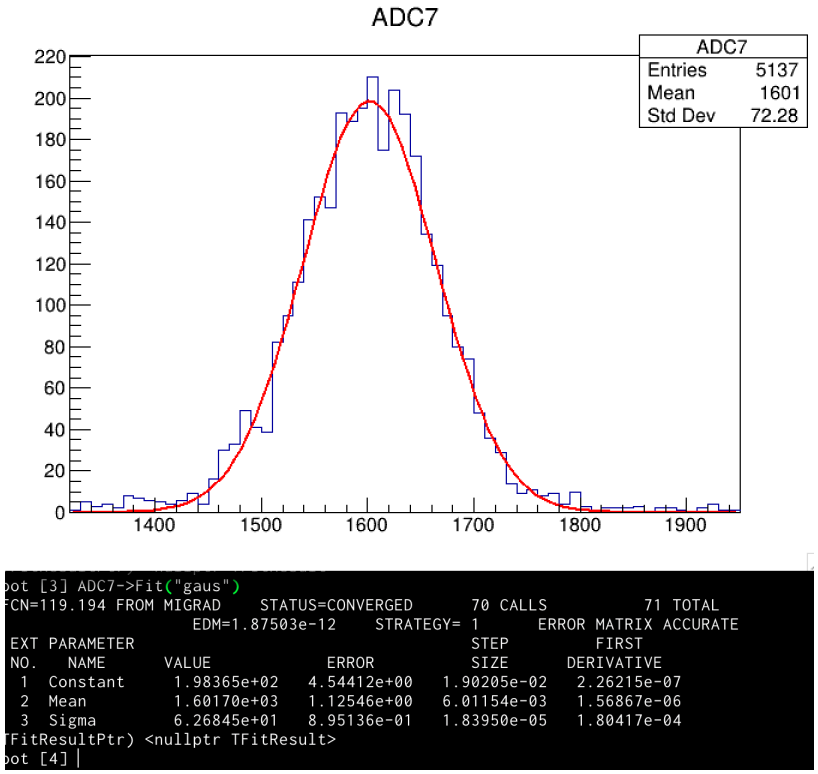
- ref:





- Install at the downstream of Si after AT-TPC

AT-TPC todo

2025.6.18

- C3D8 and C3H8 gas ,need move to EN, check connection.(Furuno,Ma Zixu,Zhang Weidong) 13:30(only C3H8)
- F2,F3 Si, Change Amp (WanWW,Bolong XIA,Yuan Chen) 14:00 (Done)
- SHV*4 cabling to AT-TPC (LI Lu,Daniel MOVILLA,Georgaina) 14:00(Done)

- new Setting// ATTPC-HV-2->CAEN 6; ATTPC-HV-3->CAEN 7; ATTPC-HV-4->CAEN 8; ATTPC-HV-5->CAEN 9;

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              C.A.E.N.       SY403        V1.45
C           Hv_En is: On     V0-SEL     I0-SEL      Crate 01       Page 0

Channel       Vmon      Imon     HVmax   V0set      I0set      Hv    Status   Ch#
F2PL-L-----  0000.00   0000.00   3143   1500.00    3000.00    Off              00
F2PL-R-----  0000.00   0000.00   3143   1500.00    3000.00    Off              01
F3PL-L       0000.00   0000.00   3143   1800.00    3000.00    Off              02
F3PL-R-----  0000.00   0000.00   3143   1500.00    3000.00    Off              03
F1Fiber----  0000.00   0000.00   3143   0000.00    3000.00    Off              04
CHANNEL05--  0000.00   0442.60   3143   0000.00    3000.00    Off              05
ATTPCHV2---  0000.00   0000.00   3143   0000.00    3000.00    Off              06
ATTPCHV3---  0000.00   0000.00   3143   0000.00    3000.00    Off              07
ATTPCHV4---  0000.00   0000.00   3143   0000.00    3000.00    Off              08
ATTPCHV5---  0000.00   0000.00   3143   0000.00    3000.00    Off              09
CHANNEL10--  0000.00   0000.00   3143   0000.00    3000.00    Off              10
CHANNEL11    0000.00   0000.00   3143   0000.00    3000.00    Off              11
CHANNEL12    0000.00   0000.00   3143   0000.00    3000.00    Off              12
CHANNEL13    0000.00   0000.00   3143   0000.00    3000.00    Off              13
CHANNEL14    0000.00   0000.00   3143   0000.00    3000.00    Off              14
CHANNEL15    0000.00   0000.00   3143   0000.00    3000.00    Off              15


Quit Change Update Page More Switch V/Isel
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- PPAC alarm (Tera Engqiang LIU) 14:00(Done)
- Check DAQ syrcronize (Yassid Furuno Haoyu Ge) 6.19
- GAGG test (Wenwu Wan Sakajo)(Done ,only DAQ)
- degrader (Fushuai SHI)

2025.6.19

- shift Table
- Online Analysis (Trong,Yassid,Zhichao,Haoyu,Lu,Xiaobing)
- Check DAQ syrcronize (Yassid,Furuno,Haoyu)
- GAGG test (Wenwu Wan Sakajo)
- degrader (Fushuai SHI)

2025.6.20

- C3D8 move to EN （Furuno, MaZixu, Zhang Weidong)

- shift Table
- Online Analysis (Trong,Yassid,Zhichao,Haoyu,Lu Xiaobing)
- Check DAQ synchronize (Yassid,Furuno,Haoyu)
- AT-TPC Multiplexity Trigger cabling and tuning (Yassid)
- AT-TPC gas handling
- FO Camera (Sakajo)
- Scaler to FRIB DAQ
- FRIB DAQ module 3316 problem

2025.06.25

- take data with AT-TPC, FRIB, and EN DAQ
  - run xxxx (ATTPC), xxxx (FRIB), 0256 (EN)

PrinterSetup

- rcc2570a/b: Ring CountingRoom (2F) & rbc4150: KyodoKou (BF)
- Setup RBC4150 on oasis/vmeserver1 using a generic postscript driver (Done).
  - Only see the 'default printer' in the 'enmag (also other control programs using JAVA6)' on the OASIS.
    - Tips: To change the default printer, lets do as::sudo /usr/sbin/lpadmin -d 'printer_name'
  - We can choose any registered printers on the VMESERVER1 (since JAVA8 is used)

work log

- 2025.03.27: work_20250327.pdf

Transportation

- Memo about incoterms: memo_incoterms.pdf
- We will proceed with CIF, CARNET.
- CARNET document: CARNET_ATTPC.pdf
- AWB for ORD-->KIX AWB1.pdf
- Quotation for transportation between KIX and RCNP: quot_transport.pdf

Pictures

- AT-TPC packing (2025.04.08)

- Departure of MSU (2025.04.17)

- Arrived at KIX (2025.04.30)
- Arrived at RCNP (2025.05.08)

Japanese agent

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Director / Sales Representative
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Mail: yusuke_takahashi@asej.co.jp
Web: http://winlogistics.com/win/jp/

C3D8 gas

- Data sheet: C3D8_SDS.pdf
- Certification of the bottle: C3D8_certificate_bottle.pdf
- Certification of the filling: C3D8_certificate_filling3.pdf
- AWB of the shipment: C3D8_AWB.pdf
- Purchased by MSU
- Shipped from MSU to RCNP on 2025/02/04 by Fedex --> Returned back due to custom.
- Pictures
  - First try:  
  - Second try: 7366-4106-1010.xlsx

Regulator

- C3D8_regulator_quot.pdf

C3H8 gas

- 20 kg quotation: C3H8_quot.pdf
  - This gas contained impurity of smelling gas. We did not used it.

Beamline connector

- VF100-ISO100 with NW25 (Furuno): seiwa_quot_ISOVF.pdf
- ISO100 clamp and O-ring (Furuno): seiwa_quot_clamp.pdf
- Picture: 

Manuals

- SIS3301: sis3301_greta_v130_v1116-compressedread-dllreset.pdf
  - FRIB memo: https://docs.frib.msu.edu/daq/newsite/nscldaq-11.3/r61341.html

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