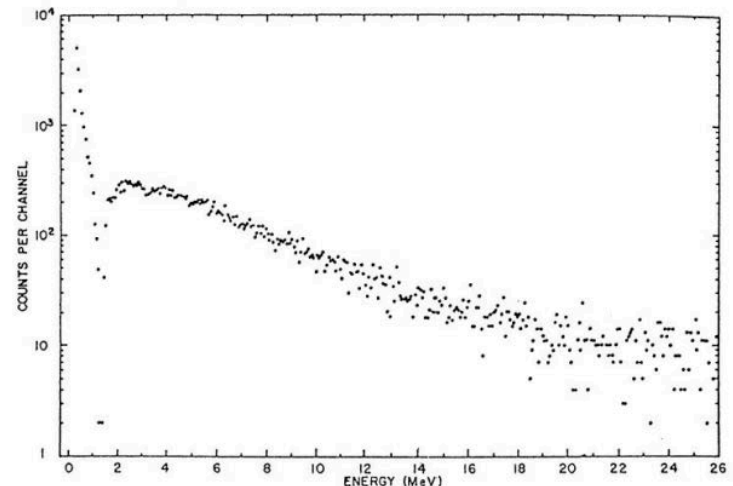


Planning for 2015 and beyond

John Quirk, Jim Miller

Charged Particles

- p, d, α measurements: Not complete
 - Do we have enough Al data?
 - Nam's proton unfolding: Do we have enough statistics?
 - No Ti data
- Si data: Can we reproduce this published data now/later?



Neutrons

- Neutron measurements
 - No vacuum needed
 - Arrive with calibrated, thoroughly tested n counters.
 - Simulation needed to understand how well we can unfold

High Energy Electrons

- Identify calorimeter that will measure electrons in the 50 MeV and above range?
 - INFN LYSO array; Stefano Miscetti expressed strong interest
 - Offers tested device and manpower to accompany it- what about electronics
 - 5x5, 3x3x13 cm³

Gammas

- low and high energy gamma measurements
 - LYSO array also useful

Plans for future run(s)

- There is still a lot to do
- Should we try to get all done in just one more run- is there enough manpower and could we get enough beam time?
- Or should we go for just finishing protons, then try for neutrons or gammas but not both?
 - How much time might we get?

Setting Up

- Silicon detectors in vacuum and feedthroughs
- Specify complete detector to digitizer chain beforehand
 - Which preamplifiers/amplifiers will go with which detectors?
 - Which digitizers can go just the right speed?
 - What cables does this mean we need?
 - CAEN cables? (optical link, MCX)
 - Feedthrough cables? (maybe rummaging through PSI trash will not be plan A)
 - AND: test these combinations
- How can we minimize ground loops?
- Improve cabling
- Test thoroughly at Seattle, PSI...?

Before Thorough Test

- Setup Si16 at BU/Fermilab
- Setup Si4
- Make and test all cables (Osaka?)
- INFN has working LYSO array- needs to be incorporated into the DAQ
- Ge detector
 - Characterize TRP
 - Identify safe conditions for powering up
 - Identify preamplifier accepting gate, or TDC to record dead time
- Get DAQ issues worked out before run, first on old data, then preparing for new data
 - The online display grew, and now we all have a better idea of what we might like to see (during beam tuning, etc.). Suggestions welcome.

Tuning

- Are we satisfied w/ time constants in Mesytecs?
- Why were some of the TFA signals so poor?

Acquisitions

- If we don't use LEMO, where are we going to get the NIM modules to use?
- More signal attenuators, signal delays, LEMO<->BNC, T-Connectors, other odds-and-ends
- If we do use LEMO, where are we going to get the NIM modules to use?

item	from	where it is	return date
scope 3054B	e-pool	AlCap Setup Area	
tool cart	Hallendienst	AlCap Setup Area	
pump stand, bellow x 2	vacuum group	AlCap Setup Area	
32 channel "BNC-LEMO" patch panel	Konrad	AlCap Setup Area	
16 channel "Rack 1B" patch panel	Konrad	AlCap Setup Area	
46 channel "red/green dot" patch panel	Konrad	AlCap Setup Area	
18 x 1ns LEMO	Konrad	AlCap Setup Area	
16 x 0.5ns LEMO	Konrad	AlCap Setup Area	
28 x 1ns LEMO	Konrad	AlCap Setup Area	
51 x 5ns LEMO	Konrad	AlCap Setup Area	
25 x 2ns LEMO	Konrad	AlCap Setup Area	
18 x 1ns LEMO	Konrad	AlCap Setup Area	
42 x 1ns LEMO	Konrad	AlCap Setup Area	
26 x 16ns LEMO	Konrad	AlCap Setup Area	
1 x broken 4ns LEMO	Konrad	AlCap Setup Area	
4 x 32ns BNC	Konrad	AlCap Setup Area	
8x 3m BNC	Konrad	AlCap Setup Area	
1 x unknown length BNC	Konrad	AlCap Setup Area	
whiteboard	Konrad	AlCap Setup	23/12/13
tool box	Konrad	AlCap Setup	23/12/13
CAEN power supply x 2	Konrad	MuSun	
Dremel	MuSun	AlCap Setup Area	
Orange extension cable	Konrad	AlCap Setup Area	
Bottle of Benzene	Konrad	AlCap Setup Area	

Addressing Lessons Learned

bad

• DAQ crashes

• Human factor

• CAEN DT5720 Communication error

• FADCs power cycling

• Common trigger in CAEN digitizers

Reflect, make sure we understand DAQ better

Contact CAEN?

Update firmware

Contact Fred?

Addressing Lessons Learned

bad

- DAQ crashes
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Reflect, make sure we understand DAQ better

Contact CAEN?

Update firmware

Contact Fred?

- ▶ Suspected bad power supply swapped before serious beam runs. Changed to 120A MuSun power supply.
- ▶ Ben had the great idea to *measure* the up-time using coincidence/anti-coincidence using scaler
 - still didn't do it, but continuing to learn valuable info: ~14% measured deadtime from MIDAS

Documentation

- We have the DropBox, let's use it
 - Documentation for CAENs, NIM modules, VME crate (power)
- We have the bloknote, let's use it