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Subject: Need of a preamplifier

Posted by [Chilo Garabatos](#) on Fri, 06 Aug 2004 17:19:30 GMT

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I am of the opinion that one should use a preamplifier (connected to the anodes through a capacitor) for testing the chambers, at least for measuring the absolute gain (by counting X-ray signals and recording the current at the same time).

In addition, it looks to me that being able to look at the signals on the scope would be of great benefit for debugging purposes: the behaviour of the X-ray tube, the observation of possible discharges due to dust, whether the gain non-uniformity is due to noise or not, etc.

What do you think?

Regards,

Chilo

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Subject: Re: Need of a preamplifier

Posted by [Clemens Adler](#) on Mon, 09 Aug 2004 07:06:33 GMT

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Hi Chilo,

I think that's probably a very good idea. I forwarded your message to Rainer (I think he's not subscribed).

What is your experience in case of a dust discharge? would Saschas observation that the current settles within ~2 hours be consistent with your experience?

cheers,

Clemens

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Subject: Re: Need of a preamplifier

Posted by [Chilo Garabatos](#) on Mon, 09 Aug 2004 09:12:22 GMT

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Hi, Clemens,

discharges due to dust can happen; one could tell if there was a preamp to the scope. For the records, the process of burning potential dust is called conditioning. The time scale is difficult to judge.

But current that disappears can also be due to humidity which dries out, or to the capacitance of the system (but 2 hours is perhaps too much for that). Turning HV off and on after a few hours (with gas off or on) would give more information.

Regards and keep having fun.

Chilo

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Subject: Re: Need of a preamplifier

Posted by [Harald Appelschaeuser](#) on Mon, 09 Aug 2004 09:25:35 GMT

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Hi Chilo, Clemens,

I agree that a preamp is a useful thing for chamber tests. After all, using a scope allows to test the chamber also with a rather low rate source.

Clemens, did you record the current history of your "dust events"?

Regards, Harry

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Subject: Re: Need of a preamplifier  
Posted by [Clemens Adler](#) on Mon, 09 Aug 2004 10:18:33 GMT  
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Hi Harry,  
Rainer and Sascha are the persons responsible for testing the chambers (therefore I did not record anything). Sascha did however record that dust event; I'll ask him whether he can post the plot somewhere.  
cheers,  
Clemens

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Subject: Re: Need of a preamplifier  
Posted by [Sascha Freuen](#) on Mon, 09 Aug 2004 20:45:47 GMT  
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Conditioning of Chamber L2C0#3:

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Approaching the following settings in steps of 50V AnodeVoltage, after each step waiting till the Anodecurrent goes down under 10 nA :

AnodeVoltage = 1600 V , DriftVoltage = - 1935 V

3 times in the first hours with this settings the trip-current of 5 uA was reached, although besides the Anodecurrent seemed to be on a constant lvl of ~ 5 nA

During a second measurement over night (during first night a current trip happend) we saw this strange? progression of the Anodecurrent :

The next night everything seemed to be pretty normal :

During one more test with DriftVoltage = -2100 V the Anodecurrent was constantly ~6 nA

I propose to implement a new forum-section "Alice TRD Chamber testing"

Regards

Sascha

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Subject: Re: Need of a preamplifier

Posted by [Harald Appelshaeuser](#) on Tue, 10 Aug 2004 08:39:33 GMT

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Dear Sascha,

thanks for providing us your beautiful figures. I am not quite sure though whether I understood everything correctly: after you reached the nominal voltages the current was low (~ 5 nA) except for three excursions which reached the trip limit, is this correct?

I think the 'eruption' may well be due to a burning piece of dust. It lasted for an hour or so, right?

I will organize an extra forum for chamber tests. I think it is very useful if people from time to time submit some of their results there.

Regards, Harry

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Subject: Re: Need of a preamplifier

Posted by [Sascha Freuen](#) on Tue, 10 Aug 2004 11:28:03 GMT

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Dear Harry

Harald Appelshaeuser wrote on Tue, 10 August 2004 10:39 I am not quite sure though whether I understood everything correctly: after you reached the nominal voltages the current was low (~ 5 nA) except for three excursions which reached the trip limit, is this correct?

Thats correct

Harald Appelshaeuser wrote on Tue, 10 August 2004 10:39 I think the 'eruption' may well be due to a burning piece of dust. It lasted for an hour or so, right?

Yes it lasted for ~75 min.

Harald Appelshaeuser wrote on Tue, 10 August 2004 10:39 I will organize an extra forum for chamber tests. I think it is very useful if people from time to time submit some of their results there.

Very good- thank you.

Regards

Sascha

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