Version 3.4.3 has the following changes and one "to-do":

- Remaining to-do: the uncertainty of "f" should be added to Table 1. (Kai is wo rking on the final numbers).

- Tried to use past-tense whenever propriate throughout the draft

- The statement of "pion rejection below 10^-4" has been replaced by the actual "the pion contamination was controlled to 2E-3 or below" throughout the draft.

- Grammar checked again, some sentences and words rephrased to the best I could.

line 34-35: The exact definiation of C2q is removed (it will appear in line 52-5 3 together with the C1q)

line 52-61: all equations are moved in-line and short explanation of why we need C2q has been added.

line 94: removed the sentence "no pion rejection was implemented", since SAMPLE integrated cherenkov which rejected pions by default.

line 109-111: G0 NIM papers are explicitly cited here. Their deadtime varied fro m a few to over 10% between forward and backward angles, but no exact results we re shown in their paper.

line 178-189 and 194-196: rephrased with detailed explanation on how the VETO ci rcuit worked.

line 250-280: Prescription for evaluating the pion contamination in the electron sample added, and some conclusive sentences rephrased.

Table 1: Results for f added and the previous "combined pion rejection of 10-4" has been removed.

line 293-297: some sentences rephrased here.

line 308-313: some sentences rephrased here.

Comments addressed in v3.4.3 are:

Bob comments Oct 6th

Here are some comments on the NIM article dated October 3.

It looks much better now !

In the abstract, I suggest you keep a consistent tense for the verbs; right now you switch between past and present tense, and it's preferable to use past tense.

"one can extract" --> "could be extracted"

"need to be measured" --> "needed to be measured"

"measurement agrees with" --> "measurement agreed with"

My nitpicky comment made previously about the semi-colons appears to not have been followed; perhaps it's worth repeating ? One would write "... throughout the experiment; the systematic uncertainty ..." instead of "throughout the experiment; The systematic uncertainty ..." No capital letters after a semi-colon. However, if you used a period instead of a semicolon, it would be correct. It's a nitpick from the POV of a non-English native speaker, and it's admittedly one of those things an

editor at Elsevier would catch, but we're supposed to catch it too.

I think that a reader would begin wondering in the Introduction where the physics paper is, and of course we haven't published it yet. It might be a good idea to put a 3rd reference in line 30 in the phrase "The goal of this experiment [1-3] was to measure ..." where ref [3] is "A publication about the E08-011 physics asymmetries is in preparation". I think its standard practice.

At line 81 we refer to "most previous parity violation experiments". This is problematic because parity-violating experiments are a bigger field including atomic parity, polarized proton scattering, low-energy nuclear experiments, etc. Also, even your list of electron-scattering experiments is not complete since it doesn't include much older ones. I think the easiest way to fix this and retain your meaning is to write: "Recent electron-scattering experiments, such as SAMPLE [4] at MIT-Bates, HAPPEX [5-9], and PREX[10] at JLab, focused on elastic ..."

Line 113: I suggest you put in the Hall A NIM reference again: "... in the HRS [3] were used to ..." because you refer to a bunch of detectors that readers may want more info on, and they are well documented in that NIM article.

Line 132: insert "the" before "HRS": "For the HRS, the two layers ..."

The rest looks pretty good. I like the Summary much better now.

sincerely

Bob Michaels

Bogdan comments Oct 3rd

Hello Xiaochao,

Please see below a few comments:

1) Introduction and the line 53 stated the goal. However, it is not explained why one need to measure the quark weak charges - currently the \theta_W is well measured. Could you add something to the motivation?

2) Line 62 explained importance of the charged pions. It would be nice in the same paragraph to add a sentence about the neutral pion.

XZ I am not sure if you are referring to positrons from pi0 decay or pi0 itself. Pi0s can't reach the detector due to spectrometer magnets. Positrons are not part of the PID accomplished by the DAQ and positron background will be discussed in the long physics paper.

3) Line 81: SAMPLE experiment had the pion background. It used the air Cherenkov counters which provided PID.

XZ I have removed the sentence "and no pion rejection was implemented". Most integrating DAQ used detectors that are intrinsically insensitive to pions, but it was also true that no additional effort was made to reject pions in SAMPLE or HAPPEX. So it might be better to just remove this sentence.

4) Line 99 and 100 have specifics of G0 which requires a published reference.

5) Line 140 described preshower of HRS-R than jump to the HRS-L. Could you move the sentence about HRS-L to the end of that paragraph?

6) Fig. 2 indicates the signals of GC of 75-100 ns wide which for 500 kHz should lead up to 5% leak of the pion to the electron

```
sample. It is not consistent with the table 1 where the pion rejection
is as good as 400. Could you explain it?

7) In several lines the values are presented with excessive accuracy:
for example in caption to Fig. 4 - 94.626 - could be just 95.

8) Typos:
line 237 "detectror"
table 1 has for pion twice the same value Q2 = 1.1 (GeV/c)2


Best regards,

Bogdan


---------------------------------------------------------------
Bob comments Oct 3rd
In the abstract: after semicolons used to separate independent clauses
the next word should not be capitalized.  They would be after a period.

I still think that you don't need to reference arXiv papers when you
have the journal paper; but probably the editor of NIM will remove
those when the edit the paper. (I mentioned this before but I guess
you disagree ...)

I'll read it in more detail a bit later.

yours
Bob

---------------------------------------------------------------
Ramesh comments Oct 3rd

While reading the summary, I got a potential typo in the following sentence in l
ines 369 and line 370:

Particle identification performance of the DAQ were measured and corrections are
 applied to the data on a day-to-day basis.


Here "corrections are applied " could be "corrections were applied" I think.


In line 474, does the line fragment "a ¡Ö 0.2%"  mean "about 0.2%"? If so, how a
bout replacing that fragment by "about 0.2%"?

I am not insisting these things should be implemented, but just an idea. Thank y
ou.
```