Minutes of the 56th "ILC-CLIC e+ studies" meeting

Date: 6th (Mon.) July, 2015, 15:00 Jpn (Time slot (b'))
(b')15:00(Jpn), 9:00(Ukr), 8:00(CET), 1:00(US-IL), 23:00*(US-CA)
(* In US-CA, it is the previous day)

A part of Attendees (whom Omori was able to hear the voices):
Louis(CERN), Peter(CERN), Pavel(BINP), Eugene(NSC-KIPT),
Sabine(DESY), Gudi(Hamburg), Andriy(Hamburg), Wanming(ANL),
Stefen(CERN), Song(IHEP), Xianjing(IHEP), Takahashi(KEK),
Urakawa(KEK), Yokoya(KEK), and Omori(KEK)

Agenda:
1. Flux concentrator for the conventional source: Pavel-san
2. Discussion on POSIPOL 2015 agenda and timetable: All

Presentations:

http://www-jlc.kek.jp/~omori/ILC-CLIC-e+Studies/20150706/
20150706-Pavel_FC.pdf

http://www-jlc.kek.jp/~omori/ILC-CLIC-e+Studies/20150706/
POSIPOLAgenda2015_v1.pdf

Summary of the discussions:

1. Flux concentrator for the conventional source:

   Pavel presented the results of the design study of
   the flux concentrator for the conventional e+ source.

   Please look at "20150706-Pavel_FC.pdf".

   Pavel stayed about three months in KEK and made the
   design study.

   The flux concentrator for the conventional e+ source
   is required to have following specifications.

    (1) Large input aperture (16-20 mm in diameter).
    (2) High peak field, ~5 Tesla, to get good capture.
    (3) Keep field constant in 1 micro-seconds.
    (4) High repetition rate of 300 Hz.

   First, Pavel discussed on a "Classical Flux Concentrator",
   it's characteristics and week points.

Then he presented result of his study. He designed several types of flux concentrators. They were 2-holes FCs, Nose FCs, and Spiral FCs. He made simulation of those flux concentrators and made comparison.

Pavel concluded that a Nose FC is the best because both the transverse component of the field and the required current are smaller than those of the other designs. Also, the Nose FC's ohmic losses in the FC and the target are smaller than those of the other designs.

Then we had discussions/comments/questions/answers.

Q: What is the inductance of the FC.
A: It is order of 1 micro Henry.

Q: What happens if we change the pulse width (half-sine) from 25 micro seconds to 6 micro seconds.
A: The flatness in 1 microsecond at the peak decreases. The PS voltage increases and it may cause discharge. No other significant change is expected.

Q. The cut between turns is 0.3 mm wide. What is the determining factor of the width of the cut.
A. Engineering.
Q. What will be happen, if we change it to 1 mm.
A. The transverse component will increase significantly.

Q. Can we decrease the transverse component by adding holes in the FC body?
A. It was tried, but no effect was observed in the transverse component. The ohmic loss increased.

C. What is the effect of the target on the transverse component? It may be interesting to compare the results with and without target.

2. Discussion on POSIPOL 2015 agenda and timetable:

Ian was unable to join the meeting as planned to discuss the POSIPOL agenda due to technical difficulties.

Anyway, we made discussion on the POSIPOL agenda based on the version_1 table made by Ian.

Please look at "POSIPOLAgenda2015_v1.pdf".

There were some suggestions/requests/comments/infomations.

* Gudi will leave Friday morning.
  So, it is better to allocate a part of undulator
  sessions in Thursday/Wednesday.

* Takahashi and Omori agreed to move Compton session to
  Friday if necessary.

* Urakawa will leave Friday morning.

* Yokoya will leave Friday noon.

Reported by T. OMORI

The date of the next meeting will be some day around
August 3rd-11th. The exact date will be decided later.
The time slot will be (c')

(c')22:00(Jpn), 16:00(Ukr), 15:00(CET), 8:00(US-IL), 6:00(US-CA)