

Minutes of the 3rd Euro-Japan Compton capture&stacking meeting

November 29th 17:00(JST) 9:00 (CET), 2007

A part of Attendance (whom Omori can hear the voices):
Variola(LAL), Vivoli(LAL), Eugene(NSC-KIPT), Louis(CERN), Frank(CERN),
Kuriki(Hiroshima), and Omori(KEK)

Presentations:

Agenda:

<http://www-jlc.kek.jp/~omori/EuroJapanMeeting/20071129/20071129-Agenda.pdf>

T. Omori, Simulation of 5 Collision Points:

http://www-jlc.kek.jp/~omori/EuroJapanMeeting/20071129/20071129-Omori_5CP.pdf

T. Omori, Comparison of Capture Simulations:

http://www-jlc.kek.jp/~omori/EuroJapanMeeting/20071129/20071129-Omori_CompCapSim.pdf

Summary of the discussions:

1. Simulation of 5 Collision Points:

Please see 20071129-Omori_5CP.pdf.

Omori explained the difference of configurations of "10 collision points" and "5 collision point".
Omori generated a photon data in the "5 collision point" configuration and sent it to Vivoli-san on 28th.

2. Comparison of the capture simulations:

Please see 20071129-Omori_CompCapSim.pdf.

Omori again explained the comparison of three simulations:

- (a) Vivoli-san 1 : Vivoli-san's presentation in Posipol 2007
"A_Positron_Capture_for_the_Compton_Scheme.ppt"
- (b) Vivoli-san 2 : Vivoli-san's recent report
"RESULTS OF PARMELA SIMULATIONS OF THE CAPTURE SECTION WITH PHOTONS FROM 10 LASER CAVITIES"
See Vivoli20071113c.pdf
- (c) Wanming-san : Wanming-san's recent report
"Capture under different target and Pz lower cut.ppt".

Vivoli-san and Variola-san commented the phase window of their simulation was ± 25 degrees, while Wanming-san's value was ± 7.5 degrees. The difference seemed too large. The ± 25 degrees (Vivoli-san's value) was the edge and before bunch compression. Maybe Wanming-san's value

was r.m.s. and/or after bunch compression.
Omori will contact Wanming-san to check this point.

3. Capture simulation:

Vivoli-san explained the situation of the progress of the capture simulation. Now he is installing the chicane in his capture program. In the current program, energy selection was done by hand. In the new version program, the energy selection will be done by the chicane, therefore the result will be more realistic.

4. Discussions:

(a) 1.8 GeV electron beam:

So far all CAIN simulations by Omori assumed the electron beam energy of 1.3 GeV.

In order to compare advantage/disadvantage to increase electron beam energy, Omori will perform CAIN simulation with 1.8 GeV electron beam and 5 collision points.

(b) How to get distribution (particle data)

There are two ways to make the positron distribution at the 5 GeV point from those at the 150 MeV point.

(i) Install the new version of PARMELA code in the LAL computer, and perform the simulation up to 5 GeV point. Vivoli-san will try to this with the help of the computer experts of LAL.

(ii) Give Wanming-san the data at 150 MeV point and ask to perform the simulation from 150 MeV to 5 GeV. Omori will contact Wanming-san to discuss this possibility with Wanming-san.

(c) Gaussian approximation

Frank-san agreed that the gaussian approximation can work to start the capture simulation. So, Vivoli-san will give r.m.s. value of emittance of the captured positrons.

The date of the next meeting will be 18th or 19th or 20th of December. Omori will make coordination through e-mail.

Reported by T. OMORI