差出人: **T. Tauchi** toshiaki.tauchi@kek.jp
件名: Re: CAIN lumi calculation with many low E photons
日付: 2021年4月22日 17:01
宛先: Barklow Timothy timb@slac.stanford.edu
CC: kaoru yokoya kaoru.yokoya@kek.jp、 yokoya yokoya@post.kek.jp

Dear Tim,

I updated two routines for the case of large x by using a logarithm as shown in the page 1 of appended PDF. In this case, the logarithm is used for x > 10.0 with xmax/xmin = 1.0D5. For an example, NLAMBDA=20 is enough even if x=1000. I also updated the luminosity plot routine, which is minor one for a case of logarithmic vertical scale.

In addition, I calculated the hadronic backgrounds from collisions between beamstrahlung photons as well as the back-scattered photons. I referred your paper (P.Chen, T.L.Barklow, M.E.Peskin, PRD49(1994)3209) for the calculations. In the page 2, the luminosity distributions are shown with and without beamstrahlung and the hadronic events/sec distributions corresponding to the VMD and the minijets with p*=1.6, 3.2, 5 and 8GeV. Page 3 shows the cross sections as a function of the gamma gamma center-of-mass energy which were used in the calculations. Since the electron beams are operated with 75 bunches at 120Hz, the hadronic background event/bunch is still low. It is important to have the capability of event separation bunch by bunch as same as future colliders, ILC and CLIC.

Best regards,
Toshiaki

nlcpgn00.f_zn_v2

nlcpst0.f_zn_v2

lumplt0.f_08apr2021

largeX-hadron...KG.pdf

> 2021/03/12 17:32、T. Tauchi <toshiaki.tauchi@kek.jp>のメール:
>
> Dear Tim,
>
> Thank you for your reply.
>
> Usual suppression of the beamstrahlung is to use a flat beam similar to the ILC. Also the laser beam must be flat. It may be possible of make a flat laser beam at the XFEL.
>
> I updated the two routines of nlcpst0.f and nlcpg00.f where F_{1n}, F_{2n} are exact ones as shown in my slides, i.e. they are differrent from ones in the CAIN (EQ.5.111 - 5.116 in the CAIN242 manual). So, there is no explicit XISQ in W (Eq. 5.111) .
>
> Therefore. please use appended routines for the modification.
>
> Best regards,
> Toshiaki
>
> <nlcpgn00.f_zn_v1>
> <nlcpst0.f_zn_v1>
>
> > 2021/03/11 21:44、Barklow, Timothy L. <timb@slac.stanford.edu>のメール:
> >
> > Dear Tauchi-san