Status of Cross Section Database

C. Calancha
calancha@post.kek.jp

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Motivation

- Create database with cross sections for all ILC samples (DBD and after DBD samples).
  - Just official samples. No intention to include user generated ones.
- Provide both: crossx section at full polarized beam and at ILC designed scenario.
- Avoid every user need to collect such information by themselves.
- Safe, robust, easy to use, fast.
- Useful tool during coffee break discussions.

Design

- Original design just ascii tables.
- Moved into a proper database:
  - Fields: ID (I200050), process name (4f_szeorsw_l), pol tag (eL.pR), crossx.
  - Full polarised beam crossx (Pe-=-1, Pe+= 1) and at ILC target (e.g. Pe-=-0.8, Pe+= 0.2 at ecm=1000) are shown.
  - User can provide different polarisation parameters.
- Command line version need changes to managed the new DB structure.
  - Lot os progress also here. It will be available soon.
- Web browser version running on server accesible without VPN.
- Tested implemention: it is nicely working and very fast.
- Still not completed (i can not make public yet).

Current Status

Defining Precisely

- I finished the implemention details.
- But there is still considerations about what information to output.

Current version crossx from generator logs

- Just production cross section, no information about particular decay channel.
- That means, i.e. nnh_aa and nnh_mumu return same cross section as nnh.
- Also means, no $\gamma - \gamma$ luminosity factor added to the Bremsstrahlung processes (e.g. aa_ee).

Is this what we want?

- Certainly it was OK for me in the past ...
- ... but as a general tool its seems not OK.

Current Status

$$N_{events} = X \cdot L \quad (1)$$

N_{events}: expected number of events
X: returned value
L: integrated luminosity

Decided (yesterday evening!) to modify the stored information

- Initial plan was to keep record just of cross sections from the generator log files.
  - So far versions v1.0 and v1.2 exists following initial schedule.
- Moving to a new version satisfying Eq.1 ALWAYS.
- This is because the new version wil use the xsec from the METADATA files:
  - These are the final sec. so they satisfy Eq.1.
  - Samples with restricted decays (i.e. nnh_mumu) already include the branching ratio.
  - Bremsstrahlung processes also include $\gamma - \gamma$ luminosity factor.
  - Any correction factor included (e.g. factor 2 from physim bug during 350 production is there).
- I will make available the new version as soon as is ready.

Summary/Plan

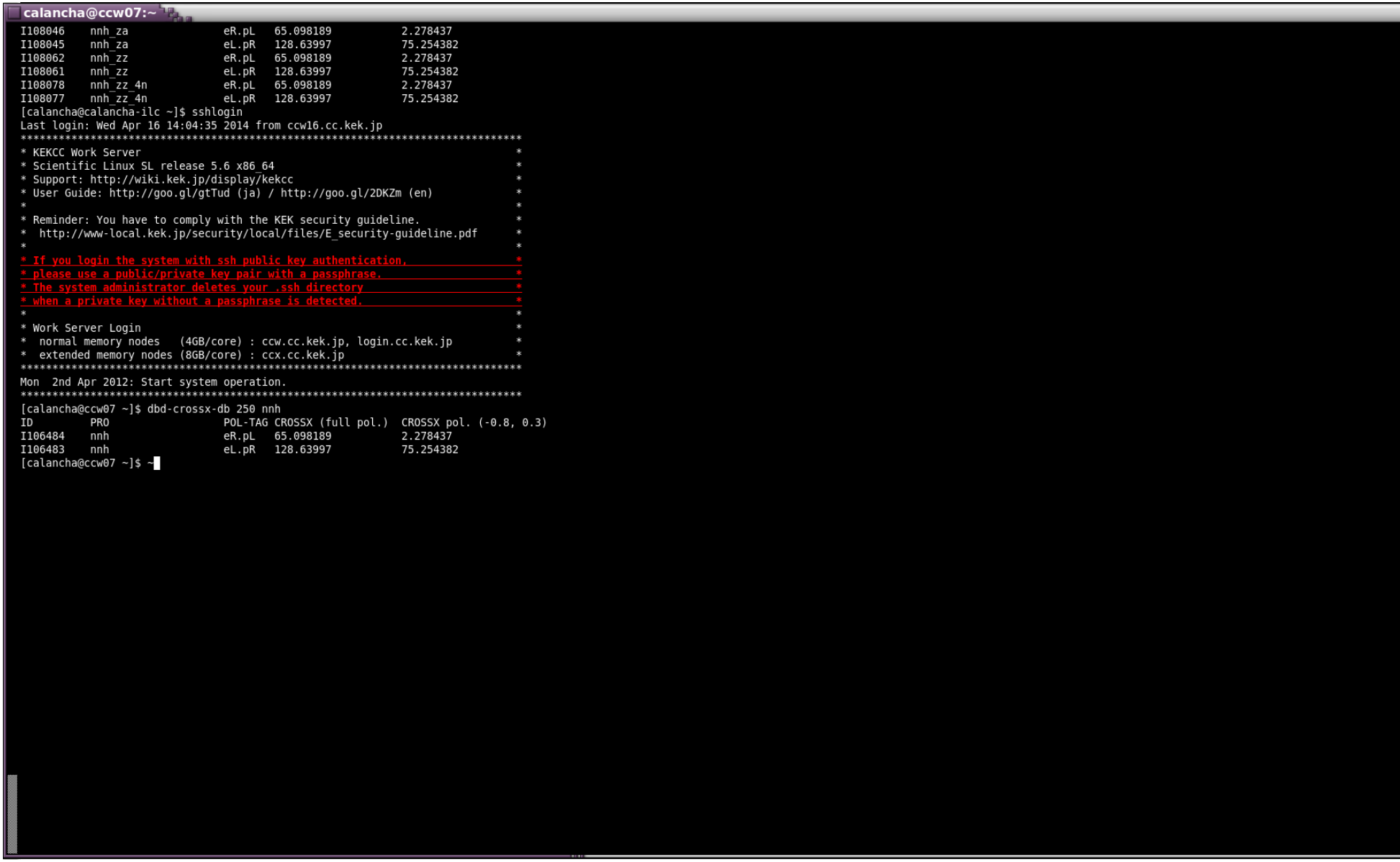
Summary

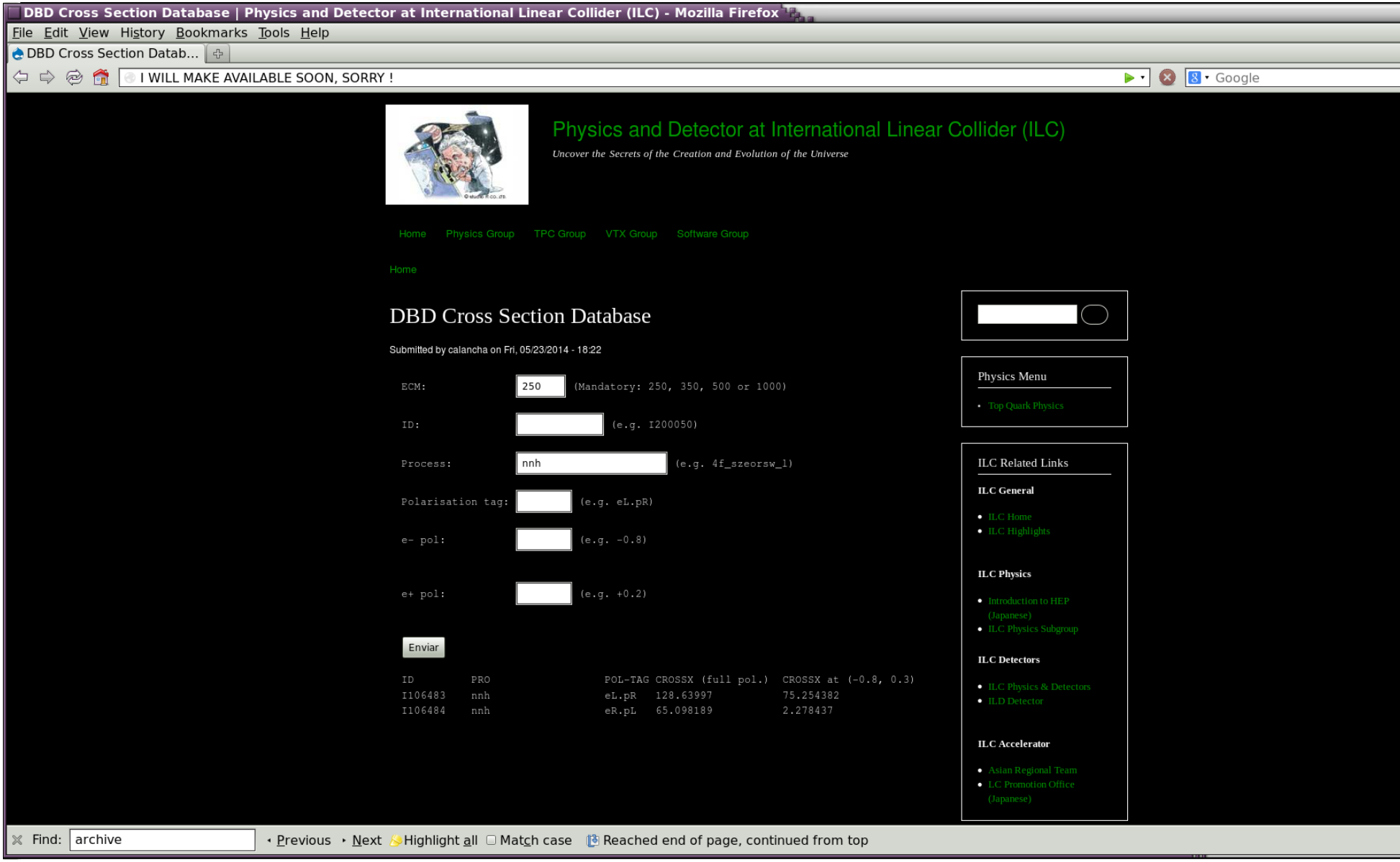
- Developing database with cross sections of official ILC samples.
- Initial versions successfully running.
- Still not ready to make public:
  - Found agreement about some necessary changes.
  - We agree user should receive value 'X' verifying: $N_{events} = X \cdot L$
  - Current version does not satisfy always such condition (restricted decay channels, Bremsstrahlung processes).
  - Additional information missing in the database: branching ratios, $\gamma - \gamma$ luminosities.

Plan

- Going to a new version satisfying the new requirements.
- The new version will make available once is ready.

BACK UP


calancha@ccw07:~
I108046 nnh_za eR.pL 65.098189 2.278437
I108045 nnh_za eL.pR 128.63997 75.254382
I108062 nnh_zz eR.pL 65.098189 2.278437
I108061 nnh_zz eL.pR 128.63997 75.254382
I108078 nnh_zz_4n eR.pL 65.098189 2.278437
I108077 nnh_zz_4n eL.pR 128.63997 75.254382
[calancha@calancha-ilc ~]$ sshlogin
Last login: Wed Apr 16 14:04:35 2014 from ccw16.cc.kek.jp
* KEKCC Work Server *
* Scientific Linux SL release 5.6 x86_64 *
* Support: http://wiki.kek.jp/display/kekcc *
* User Guide: http://goo.gl/gtTud (ja) / http://goo.gl/2DKZm (en) *
* Reminder: You have to comply with the KEK security guideline. *
* http://www-local.kek.jp/security/local/files/E_security-guideline.pdf *
* If you login the system with ssh public key authentication, *
* please use a public/private key pair with a passphrase. *
* The system administrator deletes your .ssh directory *
* when a private key without a passphrase is detected. *
* Work Server Login *
* normal memory nodes (4GB/core) : ccw.cc.kek.jp, login.cc.kek.jp *
* extended memory nodes (8GB/core) : ccx.cc.kek.jp *
Mon 2nd Apr 2012: Start system operation.
[calancha@ccw07 ~]$ dbd-crossx-db 250 nnh
ID PRO POL-TAG CROSSX (full pol.) CROSSX pol. (-0.8, 0.3)
I106484 nnh eR.pL 65.098189 2.278437
I106483 nnh eL.pR 128.63997 75.254382
[calancha@ccw07 ~]$ ~


DBD Cross Section Database | Physics and Detector at International Linear Collider (ILC) - Mozilla Firefox
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I WILL MAKE AVAILABLE SOON, SORRY !
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Physics and Detector at International Linear Collider (ILC)
Uncover the Secrets of the Creation and Evolution of the Universe
Home
Physics Group
TPC Group
VTX Group
Software Group
Home
DBD Cross Section Database
Submitted by calancha on Fri, 05/23/2014 - 18:22
ECM: 250 (Mandatory: 250, 350, 500 or 1000)
ID: (e.g. I200050)
Process: nnh (e.g. 4f_szeorsw_l)
Polarisation tag: (e.g. eL.pR)
e- pol: (e.g. -0.8)
e+ pol: (e.g. +0.2)
Enviar
ID PRO POL-TAG CROSSX (full pol.) CROSSX at (-0.8, 0.3)
I106483 nnh eL.pR 128.63997 75.254382
I106484 nnh eR.pL 65.098189 2.278437
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