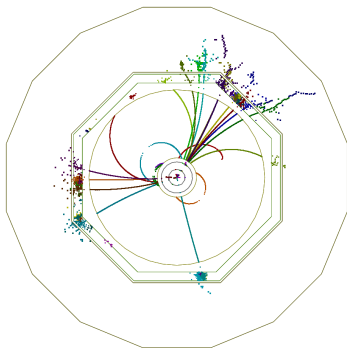


ILD Higgs/EW Group Meeting

Junping Tian and Graham W. Wilson

Aug 31, 2016



- This is the first dedicated meeting of the ILD Higgs/Electroweak Physics Group.
- The expectation is that we foster more of a “working” meeting environment where we can discuss plans and ideas. Less emphasis on formal presentations. Hopefully easier for participants to actively participate especially in discussions.
- Frequency of these dedicated meetings to be finalized. Will be in “off-weeks” - out of phase with the bi-weekly general Software/Analysis meeting. Likely every 6 weeks. Next one TBD.

- Ongoing opportunity to realize the ILC in Japan
- A tremendous scientific program - studied for many years
- Physics case is at the heart of this - need to communicate very well and further strengthen it
- LCC Physics Group is planning a document on ILC's Discovery Potential for New Particles. This will include ILD contributions from Higgs/Electroweak.

ILD Detector

- Ongoing work on detector “optimization”. Will be important for the detector we eventually build.
- Particularly important now is using ILD physics analysis as a test-bed for physics projections.
- More advanced reconstruction techniques and analyses are very important in getting to the ultimate sensitivity. Example: Higgs self-coupling.
- Enabling new capabilities in the reconstruction can be one of the most effective ways to improve all analyses.
- Work exploiting ILD-specific capabilities very welcome.

Purpose of today's Higgs/EW meeting

- 1 Dedicated Higgs/EW group working meeting to have an overview of the status and plans of ongoing studies.
- 2 Are there studies going on that we are unaware of?
- 3 Identify important areas not covered.

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- 2 Are there studies going on that we are unaware of?
- 3 Identify important areas not covered.
- 4 Next regular Software/Analysis meeting with Higgs/EW focus currently planned for 7th September. So we also want to identify candidate talks which could be presented at the more general meeting next week.

- **ild-physics-higgs** mailing list has been setup for Higgs and Electroweak.
- Currently 19 accounts are subscribed to it. Mailing list is meant for active people and those actively interested in getting involved. Subscribers were invited to discuss their plans at this meeting.
- There may be people who have been missed. Feel free to invite them.
- If you would like to be subscribed then you should send an E-mail to sympa@desy.de with the following text in the body.

SUBSCRIBE ild-physics-higgs FirstName LastName

Specific **short** contributions

- 1 Shin-ichi Kawada: $H \rightarrow \mu^+ \mu^-$ update.
- 2 Mila Pandurovic: Higgs to WW in Higgstrahlung
- 3 Katsu Kotera: W Mass with Single W
- 4 Yu Kato: H to invisible
- 5 Junping Tian: Higgs Mass and Higgs self-coupling
- 6 GWW: Analysis plans related to Higgs/EW
- 7 Tomohisa Ogawa: Anomalous HVV Couplings
- 8 Masakazu Kurata: Higgs self-coupling using HH to bbWW*
- 9 Roundtable opportunity for others to briefly explain their plans and/or interests

Ongoing Analyses

Summarized in K. Fujii's summary in June 29th meeting.

ongoing Higgs/EW analyses

| topic | comment | contact | institute |
|-------------------------|-------------------------------------|--------------|-----------|
| Higgs mass | $H \rightarrow bb$ | A.Ebrahimi | DESY |
| Higgs CP | $H \rightarrow \tau \tau$ | D.Jeans | U. Tokyo |
| Higgs CP | $t\bar{t}H$ | T.Ogawa | KEK |
| anomalous HVV couplings | $ZH, \nu H$ | T.Ogawa | KEK |
| Higgs self-coupling | $HH \rightarrow bbbb$ | C.Duerig | DESY |
| Higgs self-coupling | $HH \rightarrow bbWW^*$ | M.Kurata | U. Tokyo |
| Higgs self-coupling | systematics | J.Tian | U. Tokyo |
| Higgs BRs | $H \rightarrow bb/cc/gg$ | H.Ono | NDU |
| Higgs BRs | $H \rightarrow \mu \mu$ | S.Kawada | DESY |
| Higgs BRs | $H \rightarrow WW^* \rightarrow 4q$ | M.Panduravic | Vinca |
| Higgs BRs | $H \rightarrow \text{invisible}$ | Y.Kato | U. Tokyo |
| W mass | threshold / direct | G.Wilson | U. Kansas |
| W mass | single W | K.Cotera | DESY |
| Z-pole running | ILC Parameters | G.Wilson | U. Kansas |

Are there analyses missing ? New analyses planned ?