

Timelines and Guidelines for the ILD Letter of Intent Physics Analyses

This short document outlines the guideline milestones for the documentation for physics analyses to be included in the ILD Letter of Intent. The ultimate goal is to have well documented and sufficiently reviewed analyses for the Letter of Intent. We recognise that the timescales are tight and the analyses are at different stages and, consequently, have tried to allow as much time as possible.

15.02.2009 First draft of analysis note: documenting the main details of the analysis. Given the timescale the draft should concentrate on the main analysis details rather than being concerned about style.

17.02.2009 Presentation of results at ILD Meeting in Seoul: all analyses should be presented at the Seoul meeting. If necessary, it should be possible to connect remotely.

24.02.2009 Deadline for feedback from reviewers: we would suggest that the analysis groups/reviewers arrange a phone meeting to discuss any outstanding issues.

01.03.2009 Final draft of analysis note and the LoI text + plot(s): complete **draft** version of text/plots. There is still time for tidying up the text and finalising results, but at this stage the note and LoI text should be essentially complete. The LoI text will be used to produce the first draft of this section.

08.03.2009 Finalise review process: last chance for input from reviewers.

16.03.2009 Final analysis note and LoI text/plots: no further changes possible.

01.04.2009 LoI released

Analysis Notes

The analysis notes should document the main features of the analysis including samples used, integrated luminosity and polarization, main cuts used to identify the signal, final signal efficiencies and backgrounds in the different classes of events, and the results (i.e. expected sensitivities/precision). If there are any identified future improvements to the analysis, for which there has been insufficient time to implement, these should be documented. Ideally plots should be made using the root style file on the optimisation page of the ilcild.org website.

Text for the LoI

Please provide the text in LaTeX format. The content is more important than the style as we will need to edit the text in order to make the physics section read as a coherent whole. For topics where there are more than one group working on the analysis, please collaborate on this and produce a single document. Please place all documentation, including talks, on the ilcild.org web site.

Figures for the LoI

To ensure consistency in the style of the plots, please use the root style file on the web-site. Plots should be provided in .eps format. In addition please save and supply the plot as .C which will allow any last minute changes to be made by the LoI editors.

Role of Reviewers

The primary role of the reviewers is to ensure the quality of the LoI physics analyses. This is not a formal review process and the main intention is for reviewers to provide feedback on possible errors/improvements. Reviewers should contact the authors of the relevant analysis as soon as possible to discuss the timescale for the documentation/review process.

Analysis groups, reviewers and guideline page limits for LoI text

Benchmark processes

- $ZH \rightarrow llX$ at $E_{cm}=230$ & 250GeV
 - Authors: Hengne Li, Francois Richard, Roman Poeschl, Zhiqing Zhang, Manqi Ruan, Kazutoshi Ito, Yosuke Takubo, Hitoshi Yamamoto
 - Reviewers: Klaus Desch, Akiya Miyamoto
 - LOI text: 2.5 pages
- $ZH \rightarrow vvqq, qqqq, llqq$
 - $vvqq$
 - Authors: Kohei Yoshida
 - Reviewers: Yasuhiro Sugimoto, Roberval Walsh
 - $qqqq$
 - Authors: Wenbiao Yan, David Ward
 - Reviewers: Sachio Komamiya, Jenny List
 - $llqq$
 - Authors: Victoria Martin, Hajrah, Roberval Walsh, Mark Grimes, Clare Lynch
 - Reviewers: Katsumasa Ikematsu, Klaus Moenig
 - LOI text: 2 pages in total
 - Comments: Three analysis groups should discuss how to share the number of the pages. For example, one group write one page with introduction, and the other two group write 0.5 page only for their analysis results.
- Tau pair
 - Authors: Taikan Suehara
 - Reviewers: Keisuke Fujii, Henri Videau
 - LOI text: 1.5 pages
- Top pair
 - Authors: Andreas Moll, Alexei Raspereza, Roman Poeschl, Philippe Doublet, Keisuke Fujii, Katsumasa Ikematsu
 - Reviewers: Kiyotomo Kawagoe, David Ward
 - LOI text: 1.5 pages
- SUSY point5
 - Authors: Jenny List, Nicola D'Ascenzo, Daniela Keifer, Taikan Suehara
 - Reviewers: Francois Richard, Tohru Takeshita
 - LOI text: 1.5 pages

Other physics processes

Each group is requested to write approximately one page of text for the LoI.

- ZHH at 500 GeV
 - Authors: Michele Fauci-Giannelli
 - Reviewers: Hitoshi Yamamoto, Niels Meyer
- $WWvv/ZZvv$ at 1 TeV
 - Authors: Wenbiao Yan, David Ward
 - Reviewers: Tosjiaki Tauchi, Matthew Wing
- SPS1a stau at 500 GeV
 - Authors: Mikael Berggren, Peter Schade, Nicola d'Ascenzo, Olga, Philip Bechtel

- Reviewers: Akira Sugiyama, Peter Wienemann
- SPS1a smuon at 500 GeV
 - Authors: Mikael Berggren, Peter Schade, Nicola d'Ascenzo, Olga, Philip Bechtle
 - Reviewers: Satoru Yamashita, Imad Laktineh
- H0A0 at 1 TeV
 - Authors: Marco Battaglia
 - Reviewers: Satoru Uozumi
- WIMP search at 500 GeV
 - Authors: Christoph Bartels
 - Reviewers: Tomoyuki Sanuki, Felix Sefkow
- GMSB
 - Authors: Nanda Wattimena
 - Reviewers: Tadashi Nagamine, Graham Wilson
- Polarization measurement from WW
 - Authors: Ivan Marchesini
 - Reviewers: Dhiman Chakraborty, Katsushige Kotera
- Little Higgs Model with T-parity
 - Authors: Rei Sasaki, Tomonori Kusano, Eri Asakawa, Masaki Asano, Keisuke Fujii, Shigeki Matsumoto, Yosuke Takubo, Hitoshi Yamamoto
 - Reviewers: Taikan Suehara