

SiD Optimizations

Aidan Robson, Glasgow

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A few words

- We started ~3 years ago as a self-help group to support summer students
- Now, regular meetings with 2 conveners and stable participation
 - next meeting is #110
 - Thank you for all of your hard work and lots of interesting discussions
- We will need to pull together to maintain the current level of effort
 - Keep thinking about small, self-contained studies and write them down when you come up with one
 - We need to increase our efforts to get sponsored summer students, e.g. SULI

1. [arXiv:1704.00671](#) [pdf, other]

SiD Status and Plans

[Aidan Robson](#)

Comments: Talk presented at the International Workshop on Future Linear Colliders (LCWS2016), Morioka, Japan, 5–9 December 2016. C16–12–05.4

Subjects: [Instrumentation and Detectors \(physics.ins-det\)](#)

2. [arXiv:1703.08605](#) [pdf, other]

Studies of the Response of the SiD Silicon–Tungsten ECal

[Amanda Steinhebel](#), [James Brau](#) (University of Oregon)

Comments: Talks presented at the International Workshop on Future Linear Colliders (LCWS16), Morioka, Japan, 5–9 December 2016. C16–12–05.4

Subjects: [Instrumentation and Detectors \(physics.ins-det\)](#)

3. [arXiv:1703.05738](#) [pdf, other]

A Study of the Impact of Muons from the Beam Delivery System on the SiD Performance

[Anne Schütz](#), [Lewis Keller](#), [Glen White](#)

Comments: Talk presented at the International Workshop on Future Linear Colliders (LCWS2016), Morioka, Japan, 5–9 December 2016. C16–12–05.4

Subjects: [Instrumentation and Detectors \(physics.ins-det\)](#); [High Energy Physics – Experiment \(hep-ex\)](#)

4. [arXiv:1703.05737](#) [pdf, other]

Pair Background Envelopes in the SiD Detector

[Anne Schütz](#)

Comments: Talk presented at the International Workshop on Future Linear Colliders (LCWS2016), Morioka, Japan, 5–9 December 2016. C16–12–05.4

Subjects: [Instrumentation and Detectors \(physics.ins-det\)](#); [High Energy Physics – Experiment \(hep-ex\)](#)

5. [arXiv:1702.04827](#) [pdf, ps, other]

Backgrounds for Fast Simulation e^+e^- Collider Studies at $\sqrt{s} = 91, 250, 350, 500$ GeV

[C.T. Potter](#)

Comments: 12 pages, 10 figures. New samples are described and typographical errors are corrected

Subjects: [High Energy Physics – Phenomenology \(hep-ph\)](#)

6. [arXiv:1609.07816](#) [pdf, other]

A Study of the Impact of High Cross Section ILC Processes on the SiD Detector Design

[Timothy Barklow](#), [Luc d`Hautuille](#), [Christopher Milke](#), [Bruce Schumm](#), [Anne Schütz](#), [Marcel Stanitzki](#), [Jan Strube](#)

Subjects: [Instrumentation and Detectors \(physics.ins-det\)](#); [High Energy Physics – Experiment \(hep-ex\)](#)

7. [arXiv:1604.02420](#) [pdf, other]

Displaced vertex searches for sterile neutrinos at future lepton colliders

[Stefan Antusch](#), [Eros Cazzato](#), [Oliver Fischer](#)

Comments: 13 pages plus references, 8 figures, 1 table, matches published version

Subjects: [High Energy Physics – Phenomenology \(hep-ph\)](#)

8. [arXiv:1604.01994](#) [pdf, ps, other]

Conceptual Design Studies for a CEPC Detector

[S.V. Chekanov](#), [M. Demarteau](#)

Comments: 7 pages, 5 figures. A white paper contributed to the IAS Program on High Energy Physics (4–29 Jan, 2016)

Subjects: [Instrumentation and Detectors \(physics.ins-det\)](#); [High Energy Physics – Experiment \(hep-ex\)](#)

9. [arXiv:1602.07748](#) [pdf, ps, other]

DSiD: a Delphes Detector for ILC Physics Studies

[C.T. Potter](#)

Comments: Talk presented at the International Workshop on Future Linear Colliders (LCWS15), Whistler, Canada, 2–6 November 2015. Expanded discussion, added references, corrected typographical errors

Subjects: [High Energy Physics – Phenomenology \(hep-ph\)](#); [High Energy Physics – Experiment \(hep-ex\)](#)

Existing Notes

- A Study of the Impact of High Cross Section ILC Processes on the SiD Detector Design <https://arxiv.org/abs/1609.07816>
- ...

Notes to come (hopefully)

- Oregon ECAL studies
 - UCSC forward processes
 - Glasgow simulation model
 - Bristol / PNNL alignment
 - DESY neutrons
 - UCSC neutrons
 - DESY muons
 - Pair envelopes
 - ...
-
- These don't have to be arXiv – level documents.

Collaborative Tools

- Code development
 - development on github seems to work well
 - contributions to LCIO and LCFIPlus
- Documentation
 - This is still a big headache
 - <https://wikis.bristol.ac.uk/display/sid/SiD+Wiki>
 - <https://confluence.slac.stanford.edu/display/ilc/Home>
 - <https://confluence.slac.stanford.edu/display/SiD/SiD+Confluence+Wiki>
 - <https://twiki.ppe.gla.ac.uk/bin/view/LinearCollider>
 - *We need to resolve this **urgently***

Priorities for the next couple months

1. Wrap up existing studies
 1. update for 250 GeV priorities where necessary
2. Continue progress on understanding the detector in detail
 1. Studies of calibration details
 2. Studies of occupancies
3. Maintain the vision for the baseline program
 1. Regardless of what the current priorities are, the detector should operate in a 500 GeV ILC
 2. The 500 GeV stage is no longer the first one. We need to keep an eye on technology and start thinking more about upgrade paths and detector lifetimes