

14	Contents	
15	1 Introduction	1
16	2 The SiW-ECAL technological prototype	2
17	2.1 Silicon sensors	3
18	2.2 SKIROC: Silicon pin Kalorimeter Integrated ReadOut Chip	3
19	2.3 Active Sensor Units	4
20	2.4 Data AcQuisition system	4
21	2.5 Fully equipped readout modules: the SLABs	5
22	2.6 The prototype setup	7
23	3 Commissioning	7
24	3.1 Tagging and control of the noisy channels.	8
25	3.2 Optimal trigger threshold determination	8
26	3.3 S/N ratio for the trigger decision	10
27	3.4 Prospects	10
28	4 Performance in a beam test with positrons at DESY	12
29	4.1 Noise study and MIP calibration	13
30	4.1.1 S/N for charge measurement	15
31	4.2 Pedestal and noise stability in a magnetic field	15
32	4.3 Pedestal stability in electromagnetic shower events	17
33	5 Summary	18
34	6 Outlook	18
35	A Appendix: Filtering of fake triggers	20

- Long version of the paper ready after comments. Most important updates:
 - Reduce the internal jargon
 - Major improvement of the commissioning section
 - Take care with the publication of sensitive information not for public use.
- To be uploaded to the arxiv.
- While the author list is completed, comments are still very wellcome.
 - **Deadline** for author list + comments **17th September**

Beam test performance of the highly granular SiW-ECAL technological prototype for the ILC.

corresponding author

Abstract

The Silicon-Tungsten Electromagnetic Calorimeter technological prototype design and R&D is tailored to the baseline design of the ECAL of the International Large Detector for the International Linear Collider. This calorimeter is designed to satisfy the Particle Flow algorithm requirements, *i.e.* it is a compact, highly granular and hermetic calorimeter with low power consumption. In this document we present and discuss the commissioning of the prototype and the performance of the device in a beam test carried at DESY in June 2017.

Keywords: Calorimeter methods, calorimeters, Si and pad detectors

- Same author list.
- I will circulate the draft the week of the 17th September
- Quite changed from last time after the input received for the long paper.
- 6 pages instead of 20
 - Much shorter introduction + very simple description of the prototype.
 - Much simpler commissioning section
 - Section 4 remains very similar except that no shower data is published.