



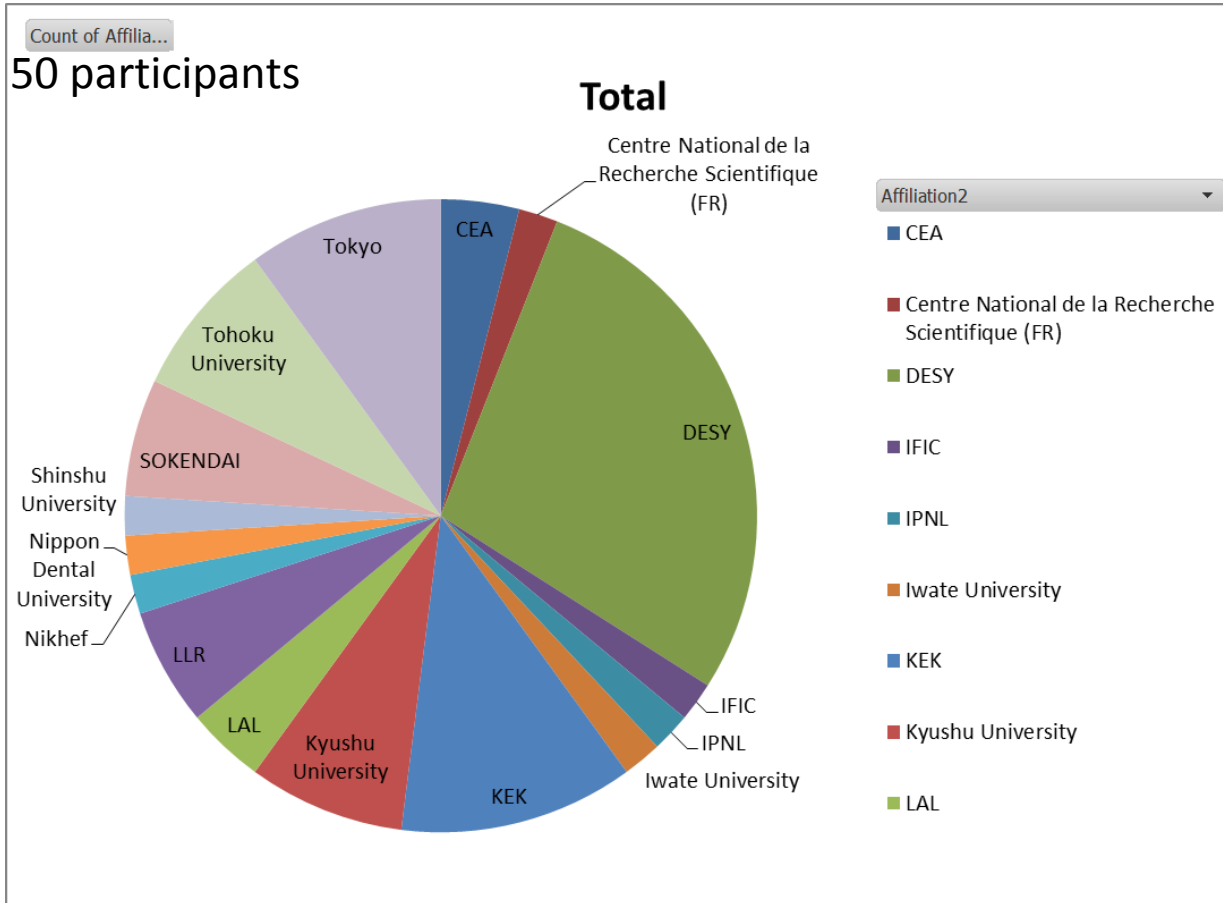
ILD@KEK 2019: Discussion



ILD@KEK 2019



- 50 participants



ILD Technical Status



- Review of the subdetectors in ILD
 - In spite of very limited funding impressive progress on technologies
 - Exception: Silicon tracking system, which is still rather marginal (though thanks to our spanish collaborators, there is progress in the forward direction)
- Benchmarking
 - Large progress, many results, many questions
- Integration
 - Pleasantly active
 - Some areas have not seen enough progress (example: TPC support)
 - But overall we have reached a good level of understanding.

Technological trends I



- Calorimeter technologies are maturing:
 - Significant prototypes for all considered technologies
 - Least far developed: Scintillator ECAL
 - We see very concrete spin-offs:
 - Si-ECAL
 - AHCAL
- For the IDR compared to the DBD we have made major progress in demonstrating the technologies
- We have made less progress in understanding integration and costing
- The number of options remains, none have dropped out due to technical reasons.

Technological trends II



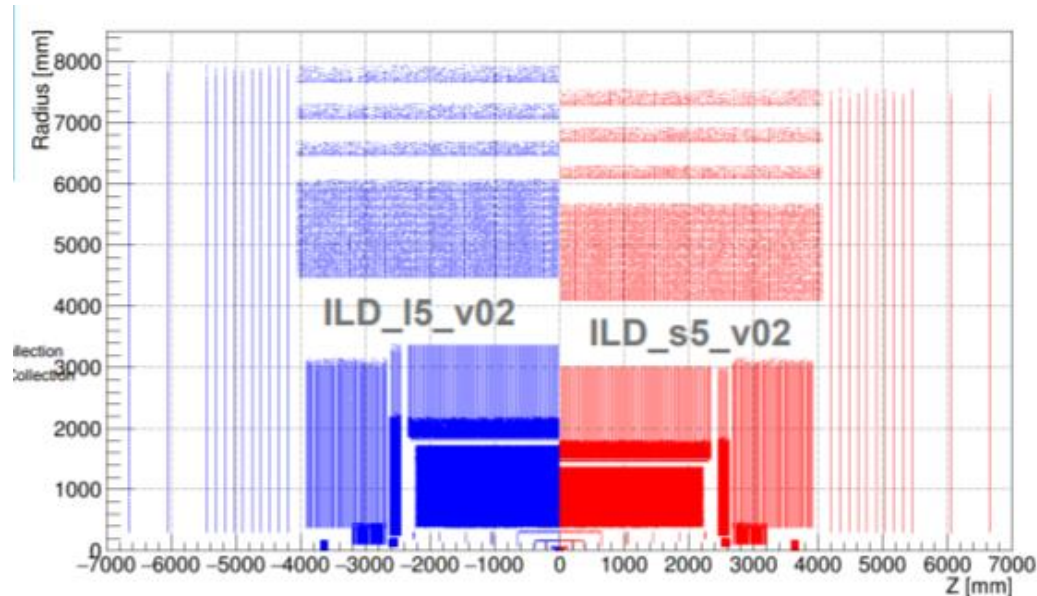
- Role of timing in the ILD system is receiving increasing interest
 - Time of flight in the tracker? Level of 100ps
 - Time of flight in the Calorimeter?
 - True 4 (5)D tracking with timing included? Level of 10 ps

These developments point our directions we might follow after the IDR

Computing/ Software



- Very impressive piece of work
- The “new” system is fully commissioned and works



Both models are implemented

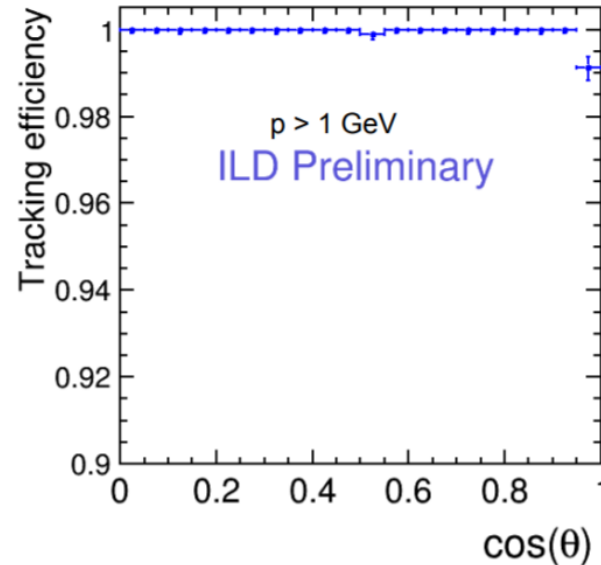
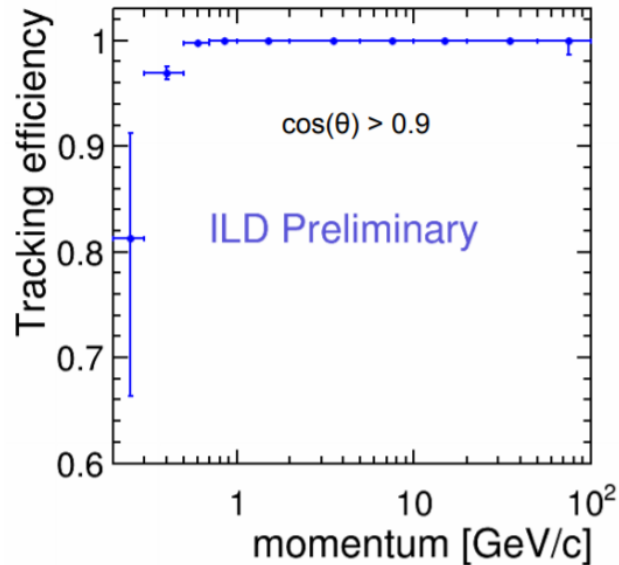
Calo options are simultaneously reconstructed

Performance



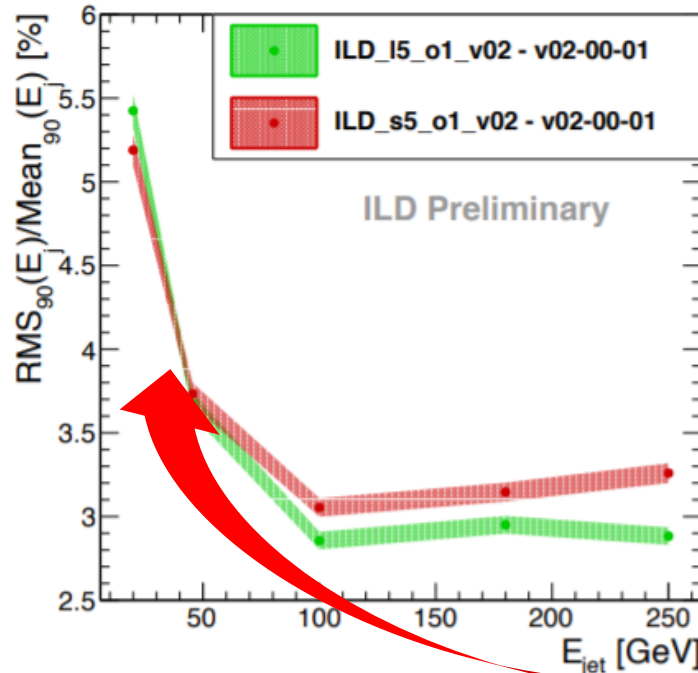
Overall very good progress in re-doing the performance plots and numbers.

Tracking:



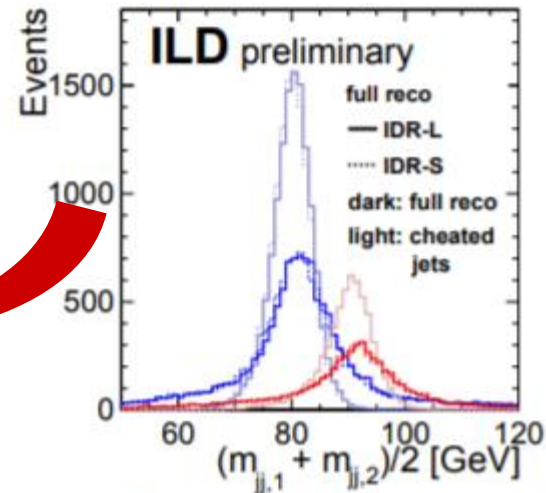
Question: is there a way to demonstrate the role of the TPC in this?

Performance



Particle flow is a major “selling” point of the ILC detectors.

We need to get the message right

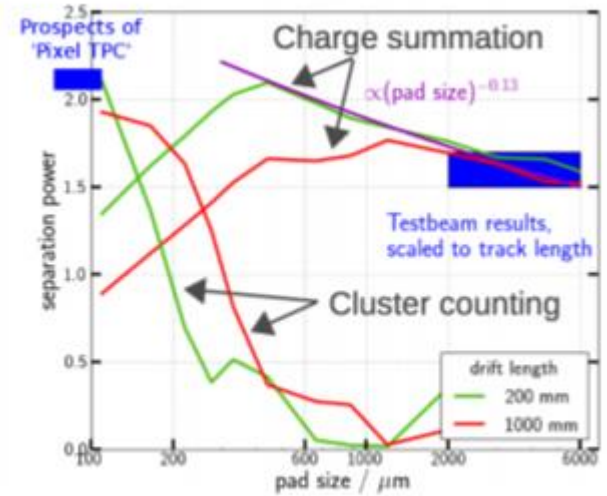
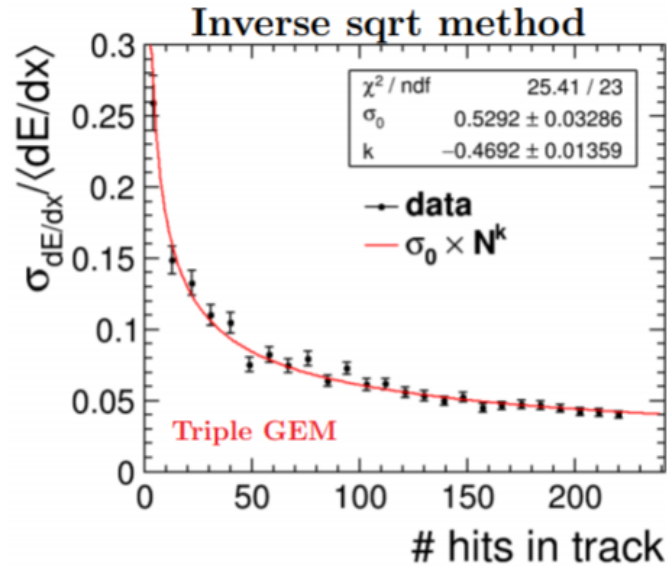


Question: do we have a showcase for PFLOW at large jet energies?

Particle ID



dEdx has finally arrived in ILD and is used in several analyses.



Pixel TPC

Traditional TPC

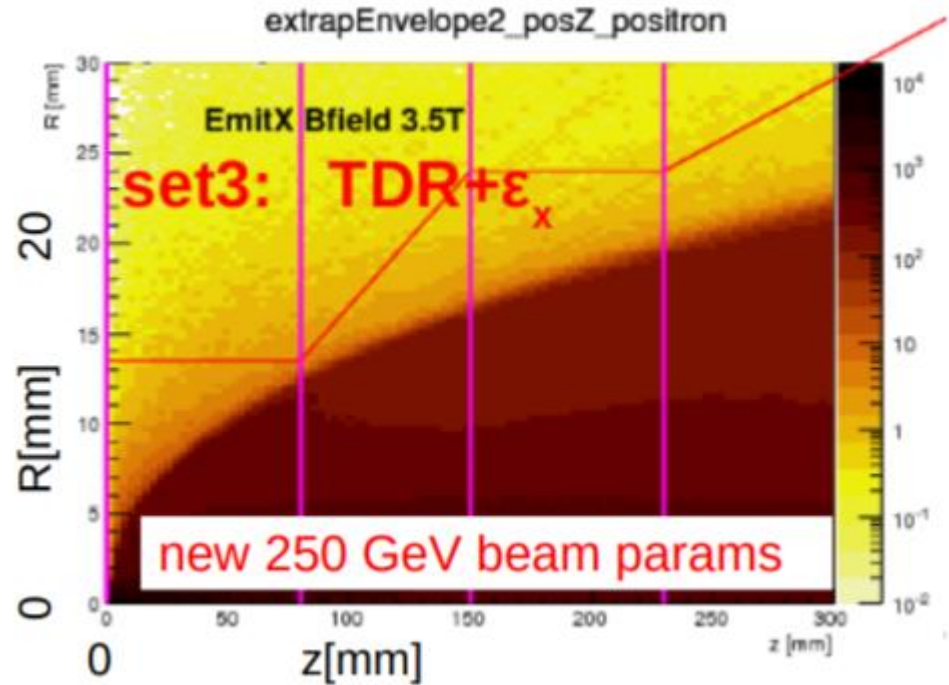
Moderate dEdx performance implemented
Improvements are possible by optimising the pad readout

Backgrounds



Thanks to Daniel, significant progress

Final status?



Benchmarks



WG	Process	Physics	Detector	ECM	Who
Higgs & EW	H->bb/cc/gg	BR	c-tag, b-tag, JER	500 GeV	NN + NN
	H->bb	mass	JER, JES	500 GeV	Ali Ebrahimi (10%) + Junping Tian
	ee->tautau	A_FB, tau-pol, A_LR	tau-reco	500 GeV	Daniel Jeans + NN
	H->mumu	BR	momentum resolution	500 GeV	Shin-ichi Kawada + NN
	H->invisible	BR limit	JER, hermeticity	500 GeV	Yu Kato + NN
	WW->qqlv	MW, TGCs, beam pol.	JES, JER, electron, mu	500 GeV	Kostiantyn Shpak + NN
	vvqqqq	QGCs	JES / JER	1 TeV	Jakob Beyer + NN
	gamma Z	A_LR, sigma_tot, JES	photon, JER/JES, e, mu	500 GeV	NN + NN
Top, Bottom & QCD	tt->bbqqqq	x-section, AFB	b-tag, vertex charge, PID	500 GeV	Amjad + NN
BSM	low deltaM Higgsinos	natural SUSY	low-p tracking, PID, hermeticity	500 GeV	Swathi Sasikumar + NN
	mono-photons	WIMPs / WISPs	photon reco, BeamCal	500 GeV	NN + NN
	Zh, mh < 125 GeV	limit on ZZh coupling	p res, e reco, JER, hermeticity	500 GeV	Yan Wang + NN

Benchmarking



- Seen significant progress with the analyses
- Lots of interesting results, lots of questions
- Very nice to see relation to detector effects/ large small comparison

Summary



- We are keeping together
- We have seen very nice progress
- We are on our way to answer our initial goals after the DBD
- We are converging towards the IDR

Summary



But: the most heard word at this meeting:

March 8

Next Steps



Our immediate goal: finish the IDR on the timescale of summer 2019

The plans will evolve after March 8 / Spring 2019

Many thanks to our hosts, in particular Daniel and the KEK team
for organising the meeting so nicely!