



Ciema



Report back from Impact of non-ILC collider option on Power Management of the detector

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Very interesting and productive session
Several files used for triggering the discussions
(available at the indico meeting page <https://agenda.linearcollider.org/event/9725/>)

Summarizing here the more relevant conclusions

(I hope do not forget nothing important, but it's my view and not the end of the history anyway)

Main goal:

Get rid of cooling as much as possible no matter the collider conditions

Need to push forward the chip developments

First step nevertheless is to understand/compute the real needs

Understand expected cross sections and angular distributions to have a clear idea of which are the most critical places

A combination of the known HGROC (CMS) + cross sections can serve to obtain a first extrapolation

A large number of the channels will be empty (needed to see if there are crowded regions needed special attention),

→ zero suppression is mandatory

Throughput could be also a concern for calorimeters, and not only from the point of view of powering.

→ Evaluation of needs and further redesigns if needed

Timing increase the powering → How much precision is really needed? Simulations needed

Other considerations:

Can we reduce the number of channels (woven or increasing the size of the cells)

Woven can work on HCAL but not in ECAL

crosstalks due to intensity of beam, need first simulation and after evaluation in real conditions

Increasing the size of the cells need to be evaluate, perhaps mixing sizes?

Need of simulations of full system to see implications on the particle flow

Problems of the cooling

Dead space

Inhomogeneities

Difficulties when assembly copper or other material needed for the cooling with tungsten in ECAL

Cost of drilling the copper for the cooling

Do not forget that, main goal is Higgs!!! Optimization must be done for it, but we need to be also competitive a Z pole