LCD ECAL / experimental studies / lab set-up **(CJ / LL. 10 Oct 2012)**

First ideas about the scope of our ECAL developments in the coming 2-3 years
(Not yet updated after visit at DESY!)

Phase A)
ECAL simulation studies accompanied by 'small' scale lab studies of the active elements: build various Sci/SiPM arrangements with dimples, wrapping, paints etc. and measure light yield, speed, linearity, uniformity, stability…. Active elements are generally smaller than ~10 cm, relatively few readout channels needed.
In this phase the electronics options for the next phase will also be explored.
Provided we can put our hands on suitable electronics, we will also already perform power pulsing studies during this phase.

Phase B)
ECAL mechanical and integration studies.
Construction of a full ECAL plane (size 18*18 cm2?)
Test of this ECAL plane within an existing full-scale CALICE prototype.
Continued electronics studies with in mind: a larger prototype and the CLIC timing and power pulsing requirements.

Phase C)
Continuation of ECAL mechanical and integration studies and electronics studies.
Test of one or more ECAL planes within a technological prototype (plane size ???)
Experimental studies incl. cosmics and beam tests of full scale modules with absorber plates. Size in the 50 cm range, 100(0)s of readout channels ?

Required tools for A)
- Small x-y translation station (20 x 20 cm2)
- MIP source (Sr-90 + possibly an electron spectrometer)
- Pulsed UV Laser diode (pico sec)
- Electronics: 1 ASIC with simple interface to PC (USB), not necessarily fully CLIC compliant.

Alternatively a decent digital scope (4 channels) may do the job. Medium size dark box

Required tools for B+C)
- Medium size x-y translation station (50 x 50 cm2)
- MIP source (Sr-90 + possibly an electron spectrometer)
- Pulsed UV Laser diode (pico sec)
- Electronics (several ASICs, HBU-like cards, specific connectivity, DAQ system), close to CLIC requirements
- Cosmic trigger, ideally with tracker
- Beam trigger, tracker
- Larger dark box