Thesis writing

To structurize work and all data I got before I have started to write thesis:

- Made contents and estimations of volume for each chapter and sections

- First I wanted to start from introduction part
    * read (selectively) TDR of ILC 2013 (overview, physics case)
      Quarks and Leptons, F. Halzen, A. D. Martin (sm, qcd, susy)
      Introduction to elementary particles. D. Griffiths
      russian internet sources (can I use references in literature for russian books?)
    * made some drafts for introduction part, but it steel need some time…

- Wrote some pieces about simulation part and continue with this now

FCAL, LCC WS in Belgrad in October

Discussed with Sergey topics for talk:

- Comparison of segmentations by simulation
    * finish simulations and make their description in the thesis
    * Fatima works on setting and adjusting software for CMS group: ROOT, GEANT 4
    and other additional libraries . We test together scripts, trying to run BeCaS.

- ADC. Nonlinear digitizing of BeamCal signals
    Some numerical estimates on next slide.

- Sapphire prototype
    Sergey making first rough model of sapphire calorimeter with rectangular
shape, without holes for tubes

Charge deposition in pads

Case:
  1 TeV ILC
  GaAs sensors, 0.3mm thickness

Charge collected in pad from   MIP :   4.3fC
Max chharge deposition from   500GeV electron: 20 pC (~5000 MIPs)
                                          background: 20 pC (for PS)
                                                        120 pC (for US)
                                           -> Doesn't have sense to have
                                              inner part of calorimeter
                                              with US, because BG is not
   comparable, but much higher

Biweekly Clustering Meetings

Bruce and Christopher(new student?) are working now on update of BeamCal simulation study:

- SNR Comparison for Different Detector Models
- Comparison of Clustering Results Between Rectilinear and Radial Segmentation

I prepared instruction/manual for clustering algorithm codes, which include:

- Technical description of patterns and dimensions for US and PS
- Package of codes of clustering algorithm with example files
- Manual "how to use"

3.5x3.5 mm Rectilinear Segmentation

3.5x3.5 mm Radial Segmentation
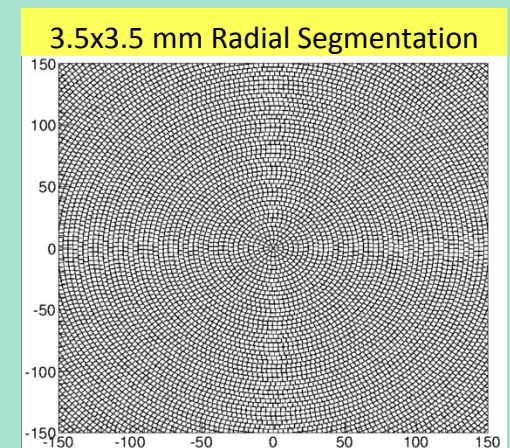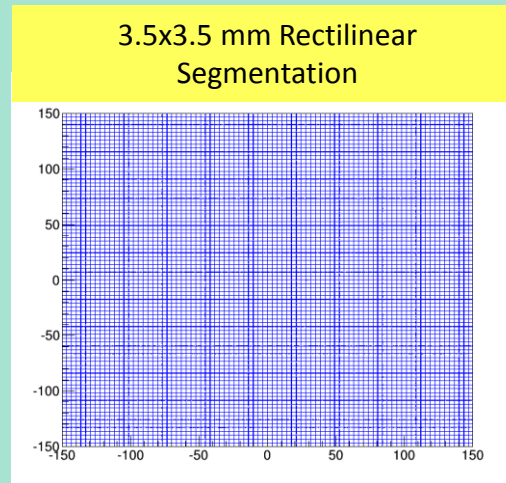
other stuff

- There is an issue to make gold plating of GaAs wafers of 2011 design.
  We together with Hans have found that we currently have at hands 29 such sensors.
  (there are 2 more, but they are not at DESY at the moment)