# Status

- Studies on Wide Dynamic Range SiPMs with High Pixel Densities
  - Large energy deposit in ECAL crystal unit(up to 10GeV). SiPMs with wide dynamic range are needed. Design a method to calibrate the SiPM response. And we can also correct the saturation effect of crystal unit(crystal+SiPM) with a toy MC.
  - Experiment: using PMT to calibrate SiPM output with picosecond laser(done)
  - Toy monte carlo of SiPM: simulate the response of SiPM(done)
  - Correction on the saturation effect with beamtest data(BGO/LYSO) (ongoing)

- Studies on Time Resolution of BGO Crystal Bar
  - Study the time performance of BGO crystal unit. Explore the effects of different timing methods, the pre-amplifiers, crystal size, and other related factors. Also give a optimal time resolution with simulation.
  - Experiment: comic ray/electron beam, pre-amplifier with different magnification and bandwidth, crystal size(almost done)
  - A full simulation and digitization model: simulate the time resolution of different setups and compare with experiemnts(ongoing)