JLC Calorimeter Studies

Scheme ; Plastic-scintilator-based sandwich calorimeter with hardware compensation (both EM &Had).

R&D ; Finest granuraliry achievable with reasonable cost and effort.

Options 1) Orthodox RectTile with size of 4cm x 4cm.

2) Strip Arrays (x,y) of 1cm-width

Sub-system R&D

a) Shower-Max detector with direct-attached APD-readout and conventional WLS-readout.

b) Super-multi-channel photon detectors.

Testbeam Experiments

Hadron system ; almost completed.

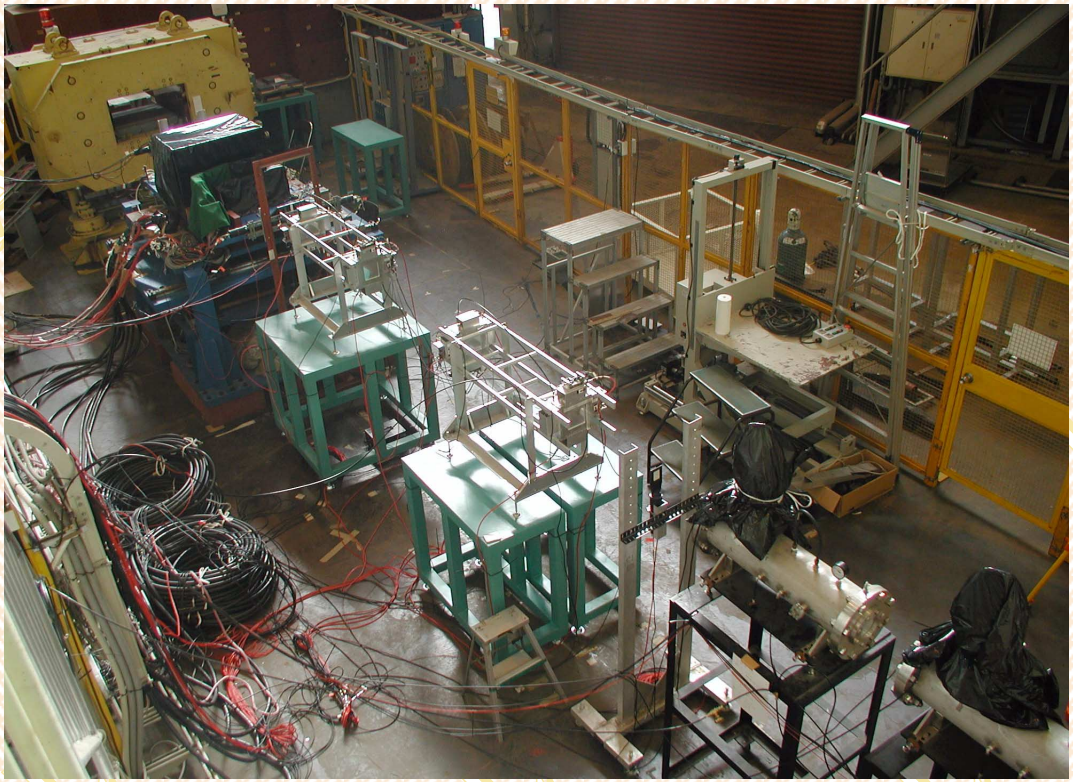
EMC system ;

1st-part just finished on Nov.14

for 1(partial), 2, and a.

2nd-part in November 2003

with 1(full) and b.



Setup of the beam test at KEK

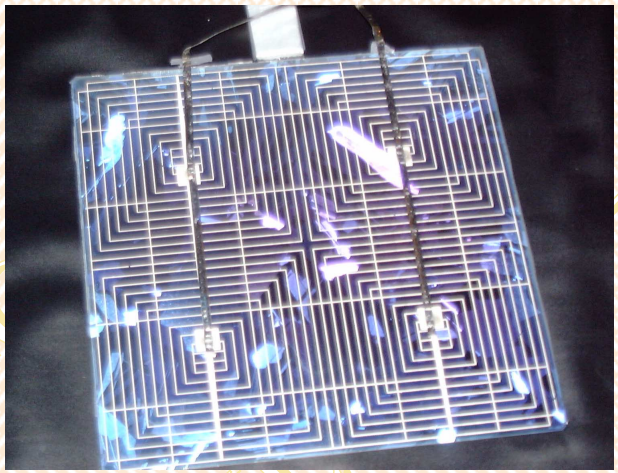
R&D - 1) Orthodox RectTile with size of 4cm x 4cm

Test module construction and beam test for :

Establish technical know-how : Small-radius bending causes 'hard-insertion' troubles.
Now medthod established.

Measure detailed response mapping for full-simulation parameter.

A test module of only two superlayers = 7.1Xo for response mapping.
Full-thickness test will come next year.



Another cheap active sensor being tested.

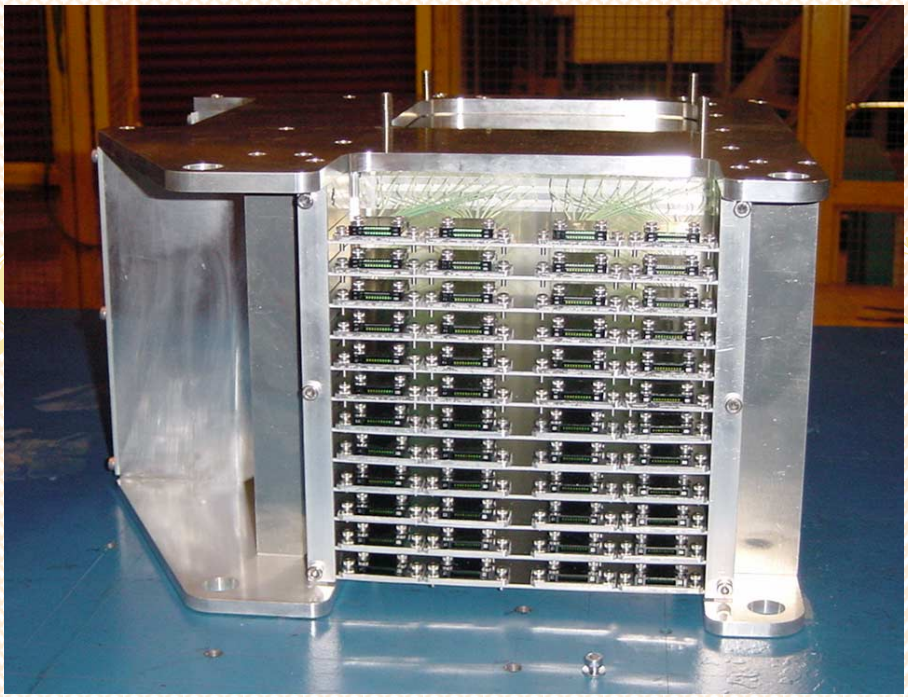
Results not yet available.

R&D - 2) Strip Array of 1cm-width

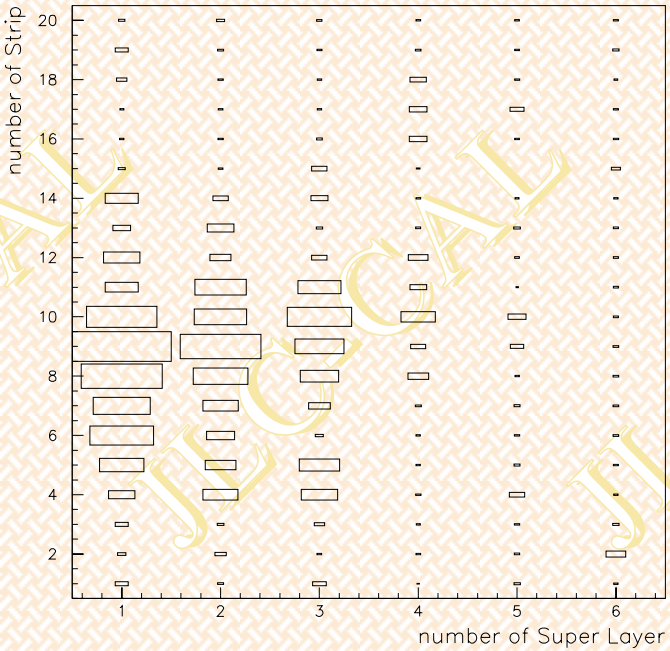
Test module construction and beam test for :

Measure detailed response mapping for full-simulation parameter.

Examine performance for two-cluster separation, ghost rejection, energy resolution, and angle-measurement accuracy.

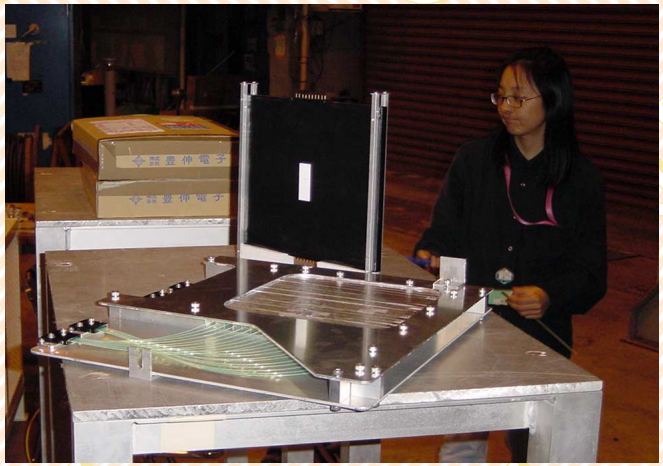


Strip-Array EMC ; WLS-fibers and their connectors are seen.

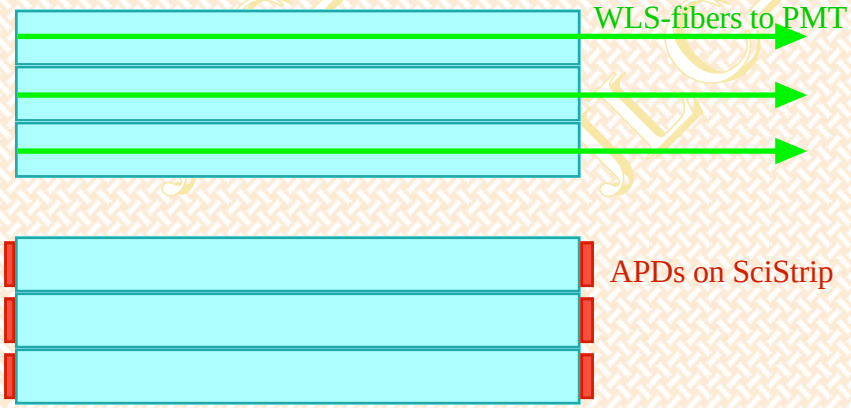


Shower profile for 4GeV positron with two-particle injected.

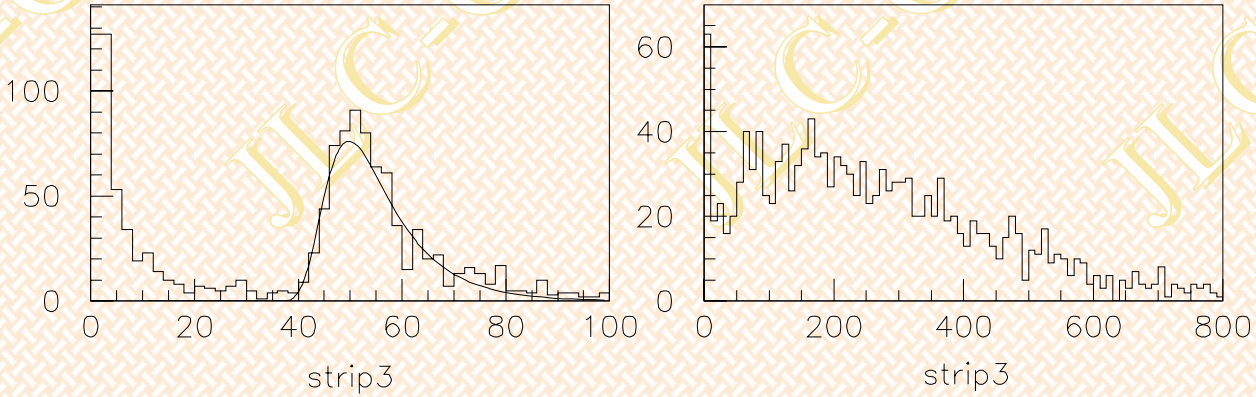
R&D - a) SHmax (conventional & direct-APD)



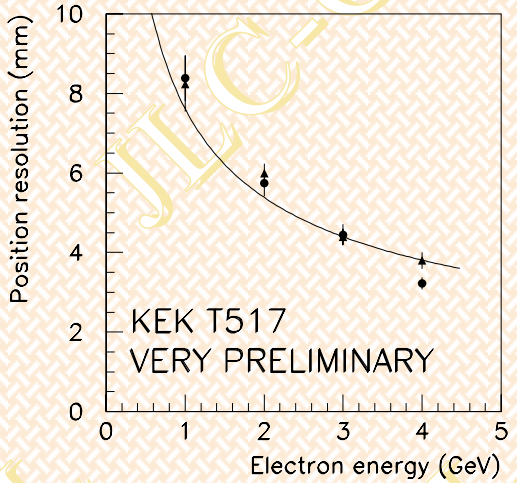
Very compact direct-APD SHmax (standing)
and conventional WLS-SHmax (lying).



Readout schemes of direct-APD (bottom) and conventional WLS (top).



MIP signal well-separated from pedestal (left) and 4GeV-electron signal (right)
for direct-APD SHmax.



WLS-SHmax shows reasonable resolution.

Software/Simulation

Almost freezed until the completion of the 1st-half of the test-beam program.

> Just finished on Nov.14, a few days ago.

Hope to come up again soon.