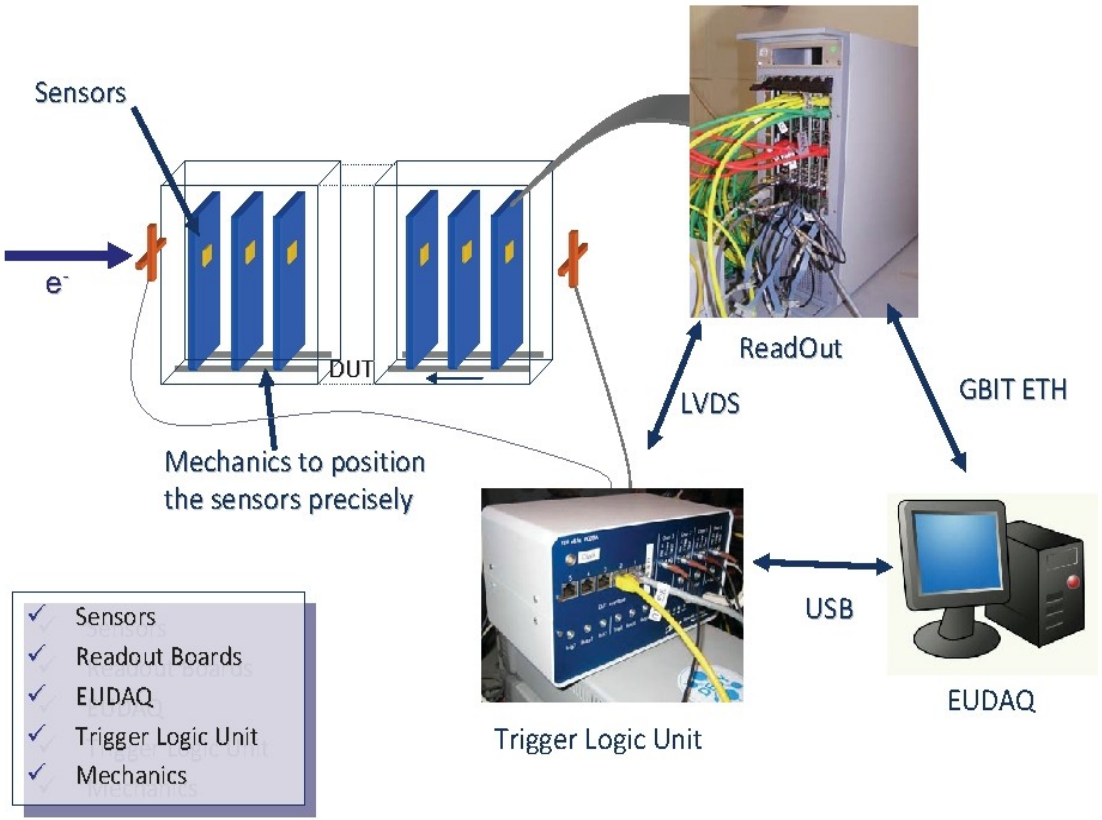
EUDET Telescope: Demonstrator

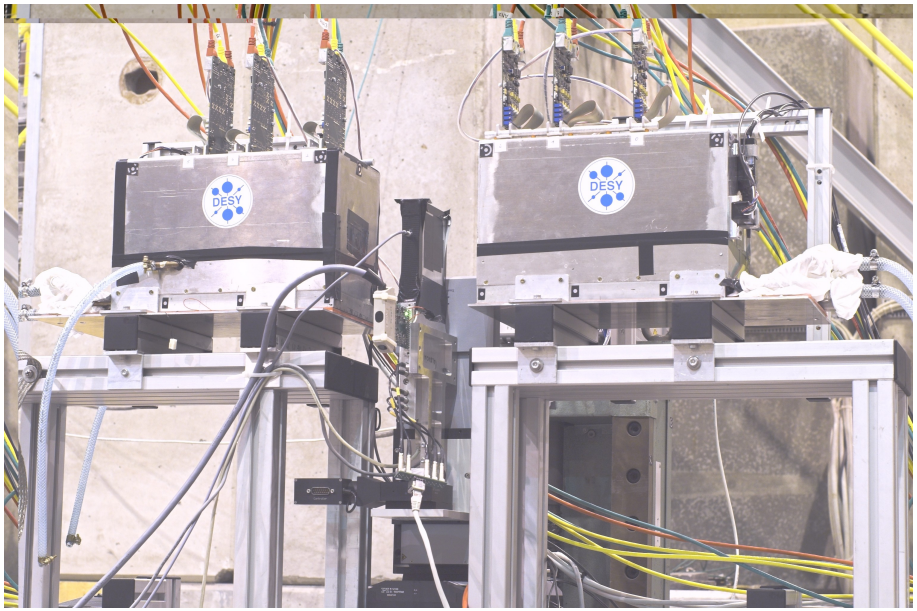
EUDET project is a program to develop the infrastructure, to facilitate the experimentation and to enable the analysis of data using shared equipment and common tools for the future colliders (ILC)

JRA1- test beam infrastructure
(EUDET Telescope)

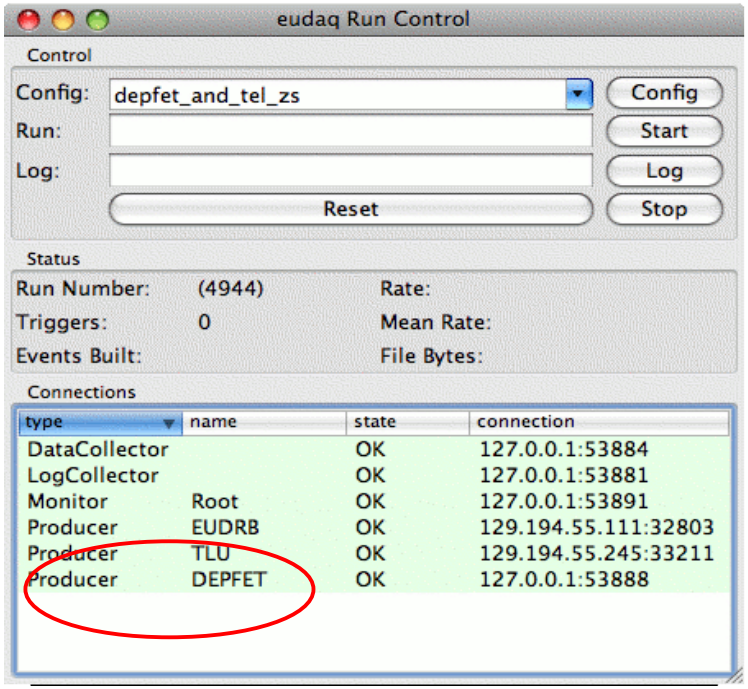


- Monolitic active pixel sensors(MAPS) were chosen for the EUDET telescope. The sensor (MimoTel prototype) is divided into 4 sub-arrays of 64x256 each readout in parallel with a pixel pitch 30x30 μm^2.
  This results in an active area 7.7x7.7 mm^2
- General purpose acquisition board (EUDRB) used for readout of MAPS sensors. A MVME6100 Power PC computer collects the data from different EUDRBs inside the VME64x crate and sends it via Ethernet to the main DAQ PC.
- A dedicated Trigger Logic Unit (TLU) accepts triggers from the different scintillators and generates a coincidence signal to trigger the system. Each trigger carries a trigger number and time stamp.

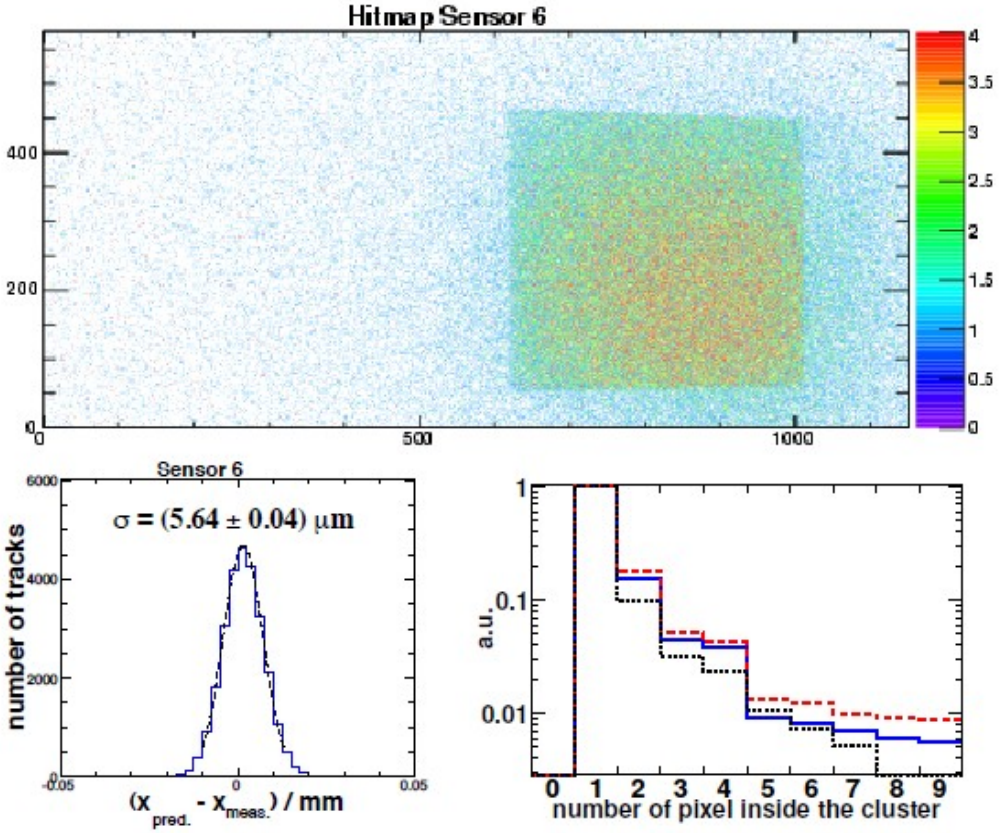
EUDET Telescope and DEPFET DUT



- The initialization and configuration of the system was carried out from the main EUDET runcontrol window, running on EUDET DAQ PC.
- Data Collector Processor merged both the EUDET telescope and DEPFET data streams into a common file.



Final Telescope



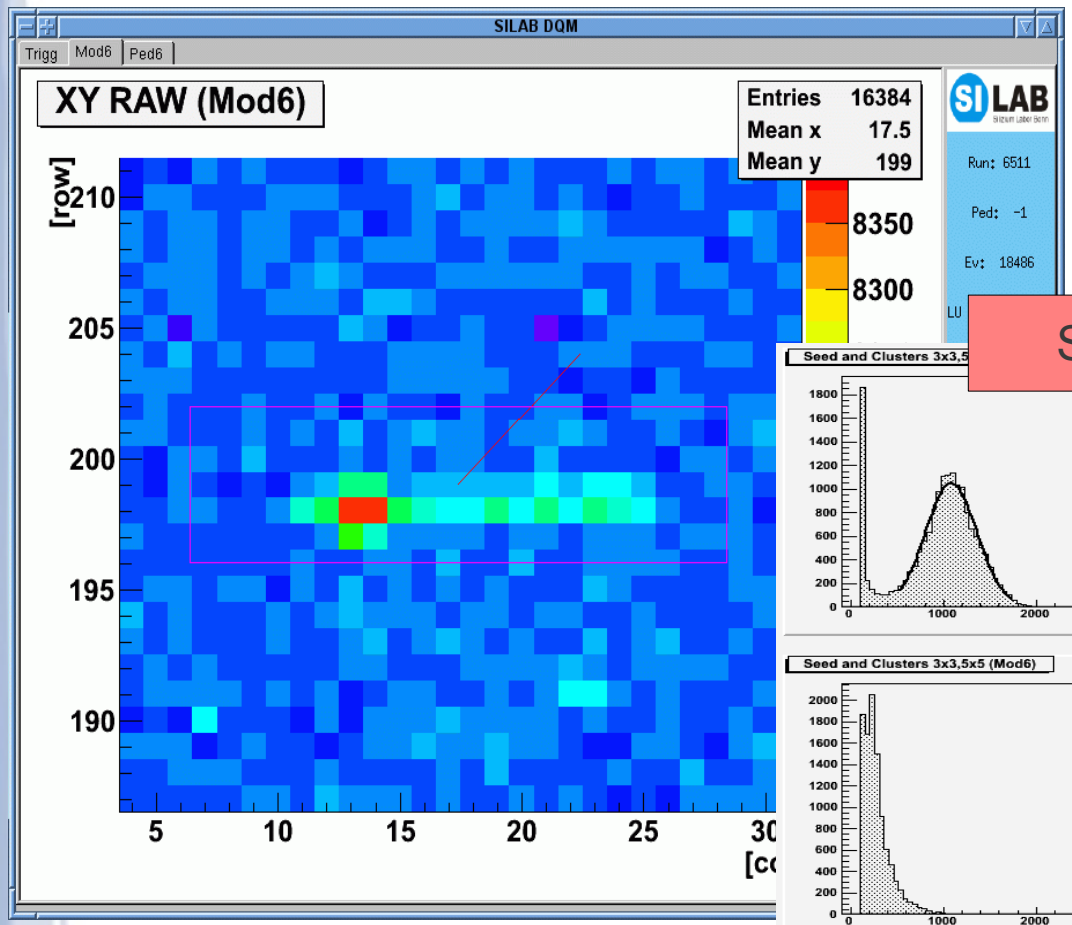
- ~4-5 um single plane resolution
- ~2 um telescope resolution

Starting from Sep. 2009 a final version of EUDET telescope was installed at CERN SPS.

- Mimosa26 chip: 1152 x 576 pixels, an active area of 21x10.6 mm^2 , with a pitch of 18.4x18.4 μm^2 , and an integration time of 112 μs. Binary readout.

Mimosa18 sensor, an active area of 5x5mm^2, with a pixel pitch of 10x10μm^2 but with a slower readout time.

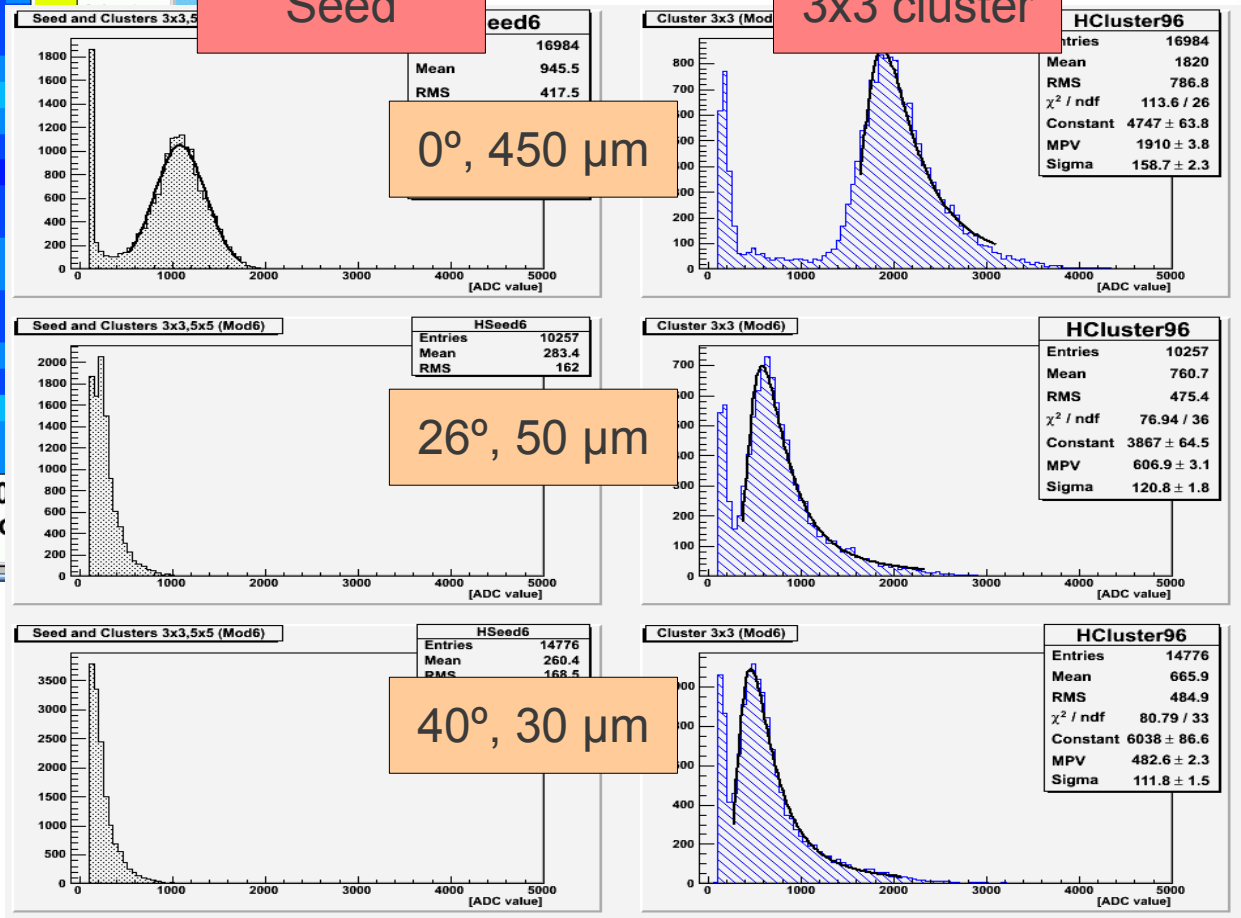
Cluster search efficiency



- For the thinned sensors S/N is smaller => thr for seeds should be lower => use a EUDET track prediction and compare with DEPFET.

Seed

3x3 cluster



DEPFET TB 2010

- One week 15.11-21.11 (maybe we can start 8.11?)

Confirmed Users 2010

Period	Date	H6A	H6B	Comment
1	10.05.-17.05		**SILCRD**	
	17.05.-25.05	**MEDIPIX**		
	25.05.-31.05	**ATLAS BCM**		
	31.05-07.06	**Diamond RD42**		Prepare EUDET
2	07.06.-14.06		**SPIDER**	
	14.06.-21.06	CMOSILC	**ATLAS -3DSi**	
	21.06.-05.07	CMOSILC	**NA62**	new user!!
3	05.07.-19.07	**CERF** (in H6Z)		No access to H6A or H6B (?) to be checked with Edda
	19.07.-26.07	**CMOSILC**	ATLAS-Pix	
	26.07-09.08	**MMGAS**	**ATLAS-Pix**	
4	09.08-23.08		**Diamond/RD42**	EUDET?
	23.08.-06.09	CMOSILC	**ALFA**	ALFA need 2nd green table
	06.09.-13.09	**PEBS**	ALFA	
5	13.09.-20.09	**SUPB**	ALFA	
	20.09.-27.09		**SPIDER**	
	27.09.-11.10		**SILC/EUDET**	Ljubljana ->Andrej ?
6	11.10.-25.10	CMOSILC	**ATLAS Pix**	
	25.10-08.11	MMGAS	**ATLAS IBL**	
	08.11-15.11		**SILCRD**	EUDET?
	15.11-21.11		**DEPFET**	

Ingrid-Maria Gregor, Status of the EUDET Telescope

Software workshop at DESY

- ILC/EUTelescope workshop at DESY
  - 26 May 2010 09:00 – 28 May 2010 18:00
  - Antonio (the author of EUTelescope)
  - Review of the analysis framework
  - Register at

    http://indigo.cern.ch/conferenceDisplay.py?confid=89979

Backup

EUDET Mi26 Residuals

residuals (sensor by sensor) by Joerg Behr