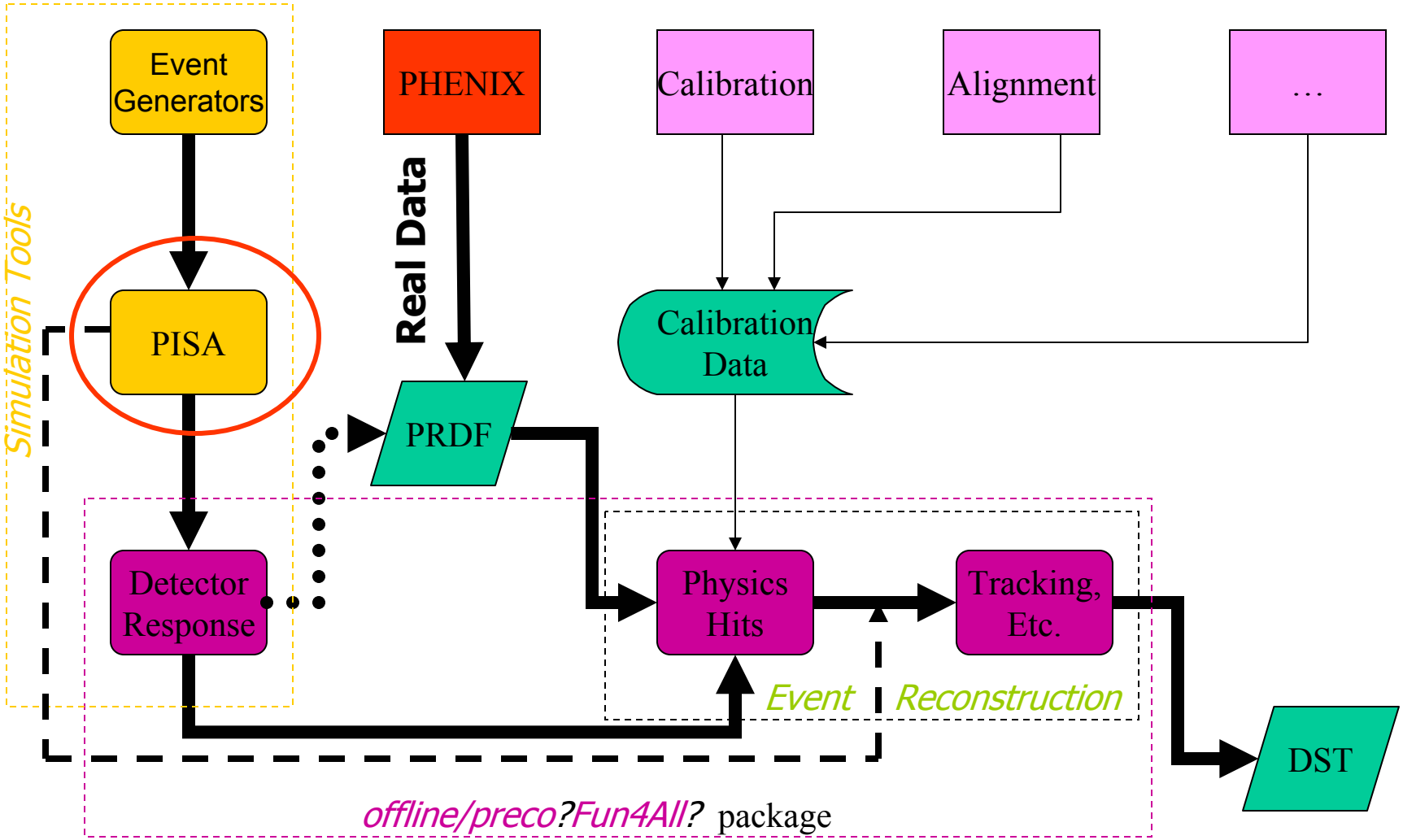
Simulation Tool Status for the VTX Project

(PISA part)

Outlook:

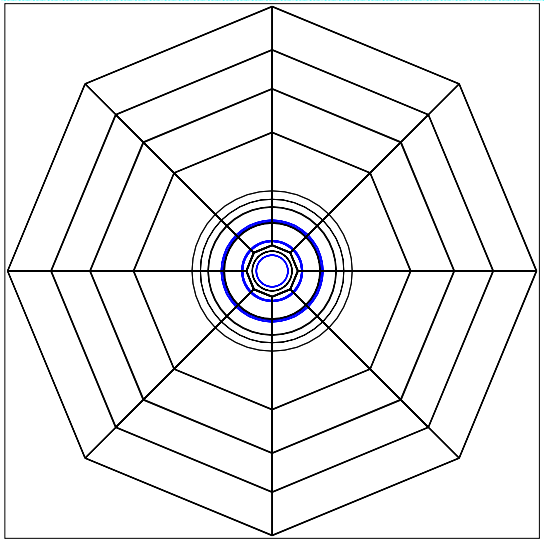
- *What is now in CVS?*
- *What is ready to go to CVS? Now.*
- *What is to be done? … Yet.*

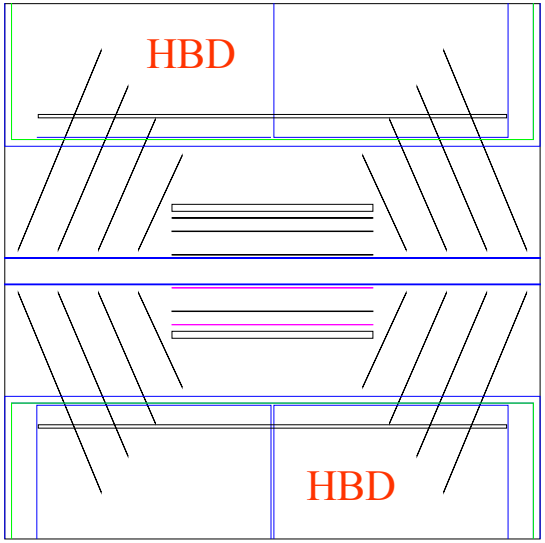
PHENIX Software Data Flow Chart



Starting point on 07/08/2003

VTX Geometry in CVS PISA since 04/09/2003





Barrel

- *4 cylinders of pure Silicon*
- *Default parameters:*

Length, cm:	30	30	30	30
R, cm:	2.5	6.0	8.0	10.0
Thickness, μ:	500	500	500	10500 (!!)*
X_0, %:	0.53	0.53	0.53	11.2 (!!)*

* *Changed to 500 μ and 0.53% on 07/28/03*

Endcap

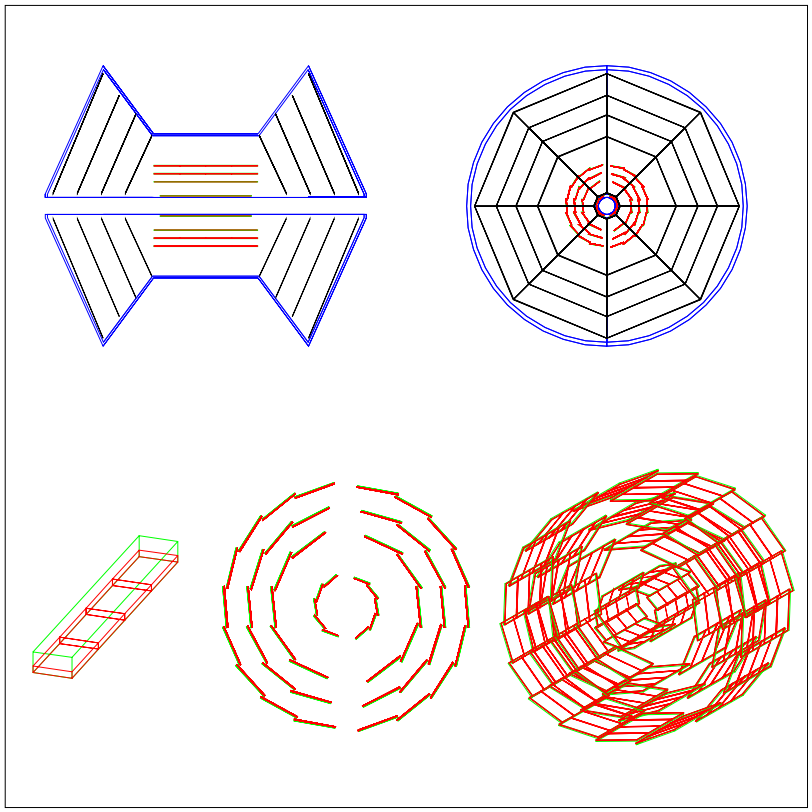
- *8 polygons of pure Silicon*
- *Default parameters:*

Thickness, μ:	224	214	210	206
X_0, %:	0.24	0.23	0.22	0.22

Partially sitting in the HBD volume !!

VTX geometry ready for CVS now:

08/12/2003



Cage

- *Rohacell, 5 mm, X_0=543 cm*
- *Filled with Air at T=0°C*

Barrel

- *1 pixel + 3 strip layer*
- *Default parameters:*

Sen. size:	13.9×56.7 mm² (pixels)			
	34.3×64.6 mm² (strips)			
Sect./Layer:	2	2	2	2
Ladd./Sect:	5	5	7	9
Sen./Ladd.:	4	4	4	4
Length., cm:	22.7	25.8	25.8	25.8
R, cm:	2.5	6.0	8.0	10.0
Si. thick, μ:	200	400	400	400
Pasv. X_0, %:	1.0	1.0	1.0	1.0

Hits

- *Local pos. & angles added*
- *Positions in the middle of Si*

(changed from entry point).

Endcap: Nothing changed

What is to be done?

❖ ***Yesterday***

Resolve volume sharing for the VTX Endcap and HBD and, probably, for the VTX Endcap and 5 sensor long (32.3 cm) barrel strip ladders. – ***Who?***

❖ ***Today***

Submit the new VTX geometry to the CVS, may be after some code clean up (global/local name interference; filling zebra-bank with the VTX parameters; change name in PISA from INR to VTX; etc.) – ***VR*** *with the help from* ***Charlie Maguire***.

What is to be done?

Coming months

❖ Barrel

- Write PISA hit conversion into the VTX signals and decoding signals back to clusters (1st iteration with no charge sharing between pixels/strips). – ***VR****, *October 2003.*
- 2nd iteration for PISA hit conversion into signals with charge sharing between pixels/strips – ***VR*** *and* ***Manabu Togawa****, *December 2003.*

* *Some help from Charlie Maguire & other experts is expected.*

❖ Endcap

- Create Endcap geometry with more realistic physics parameters, better human interface and ready for the next steps. – ***Who? When?***
- Hit-signal coding/decoding. – ***Who? When?***

What is to be done?

Remote future

After the drawings become available

Do it again !

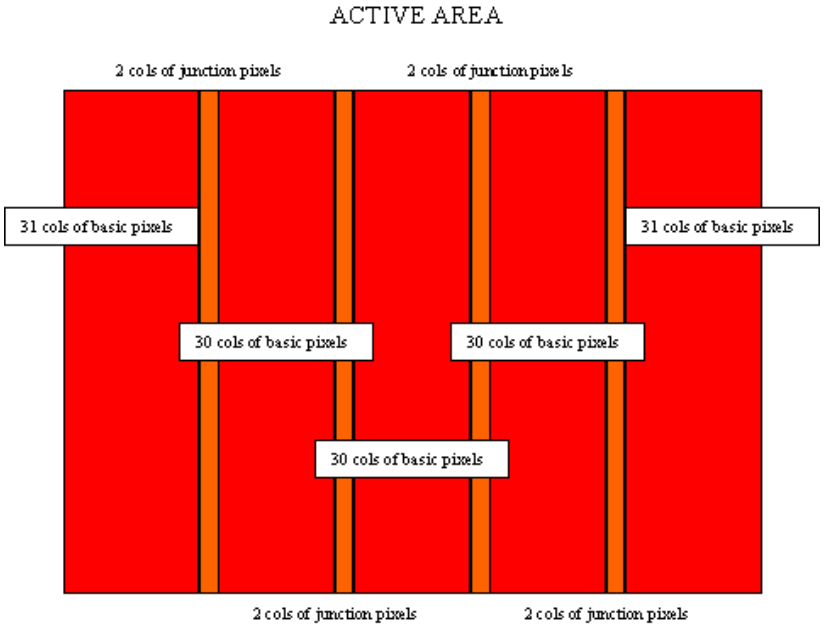
Pixel mini-ladder and Strip sensor

ALICE pixel mini-ladder

5 blocks

Physical size: 13.92×70.72 mm²

Sensitive Si thickness: 200 μ



PHENIX pixel mini-ladder

4 blocks

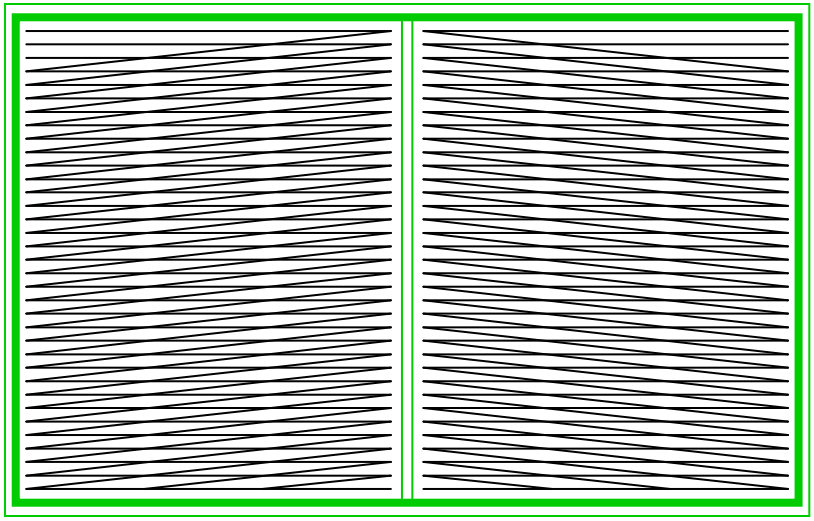
Physical size: 13.92×56.72 mm²

Sensitive Si thickness: 200 μ

PHENIX strip sensor

Physical size: 34.311×64.582 mm²

Sensitive Si thickness: 250-400 μ



Vertex detector *(Steve Ney, Dec 2002)*