DELPHI week, November 2001

Presented by: S. Ask

$\boxed{\text{The single photon analysis}}$

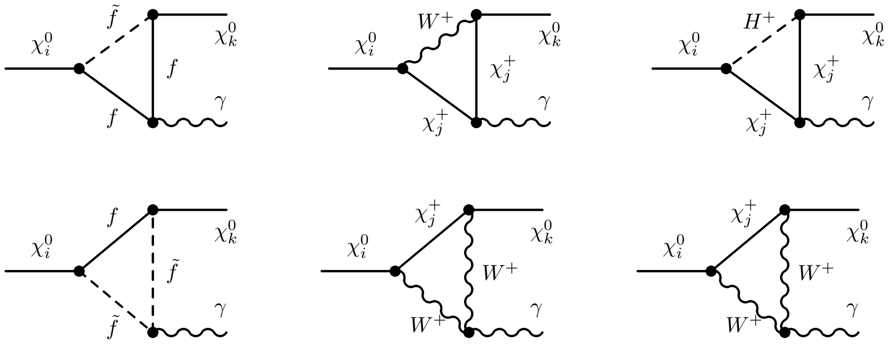
$$e^+e^- \rightarrow \not{X} + \gamma$$

Update since Greece.

The Final Part

$$e^+e^- \to \tilde{\chi}_1^0 \tilde{\chi}_2^0 \to \tilde{\chi}_1^0 \tilde{\chi}_1^0 + \gamma$$

The decay of the $\tilde{\chi}_2^0$ into $\tilde{\chi}_1^0 + \gamma$, involves very many theoretical parameters because of the loop diagrams.



$$\Downarrow$$

$$e^+e^- \to XY \to YY + \gamma$$

Model independent analysis,
like L3, OPAL & ALEPH have done.

XY Analysis

To be model independent data with $E_{cm} = 200\text{-}208$ GeV is used as one bin.

"Event Counting" method

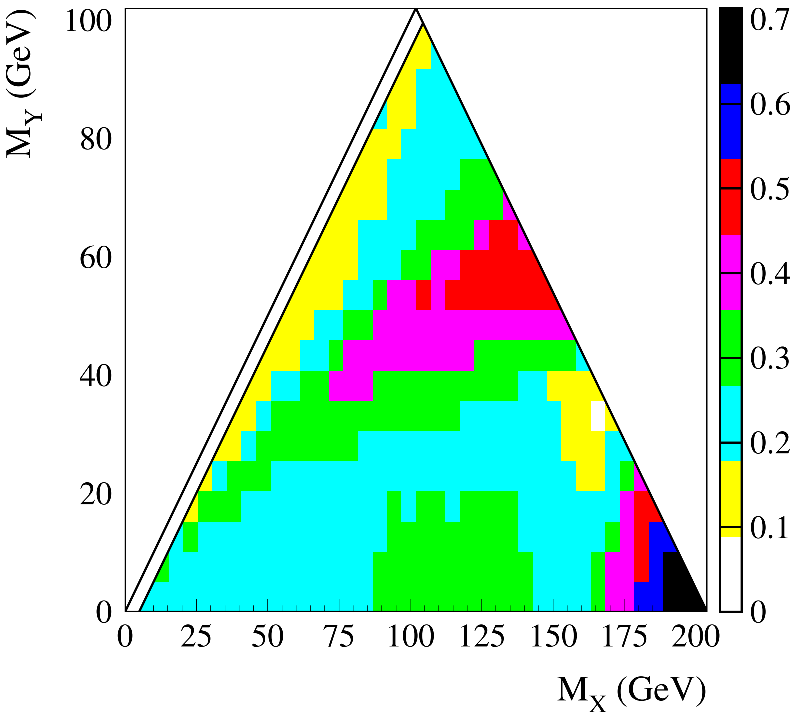
* FEMC & HPC in one sample
* Select all photons within the kinematical limits

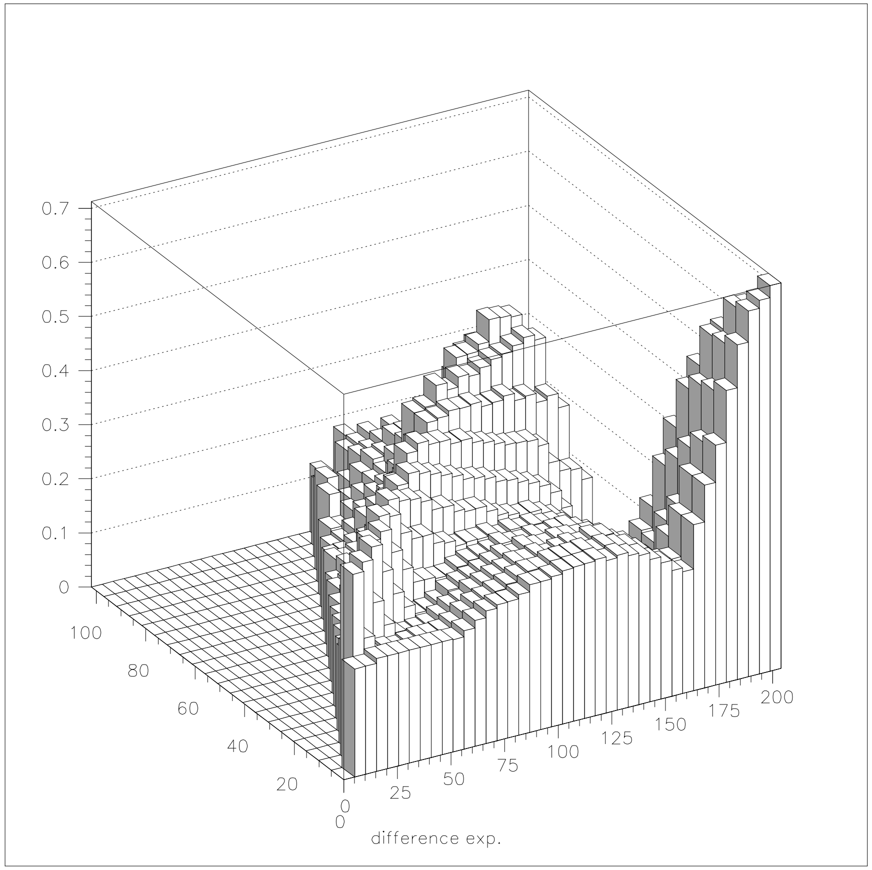
Lr method

* FEMC & HPC in different samples
* Use Lr method to select the events (flat E_γ & $\cos\theta_\gamma$ dist. assumed)
* Combine FEMC & HPC with Bayesian formula

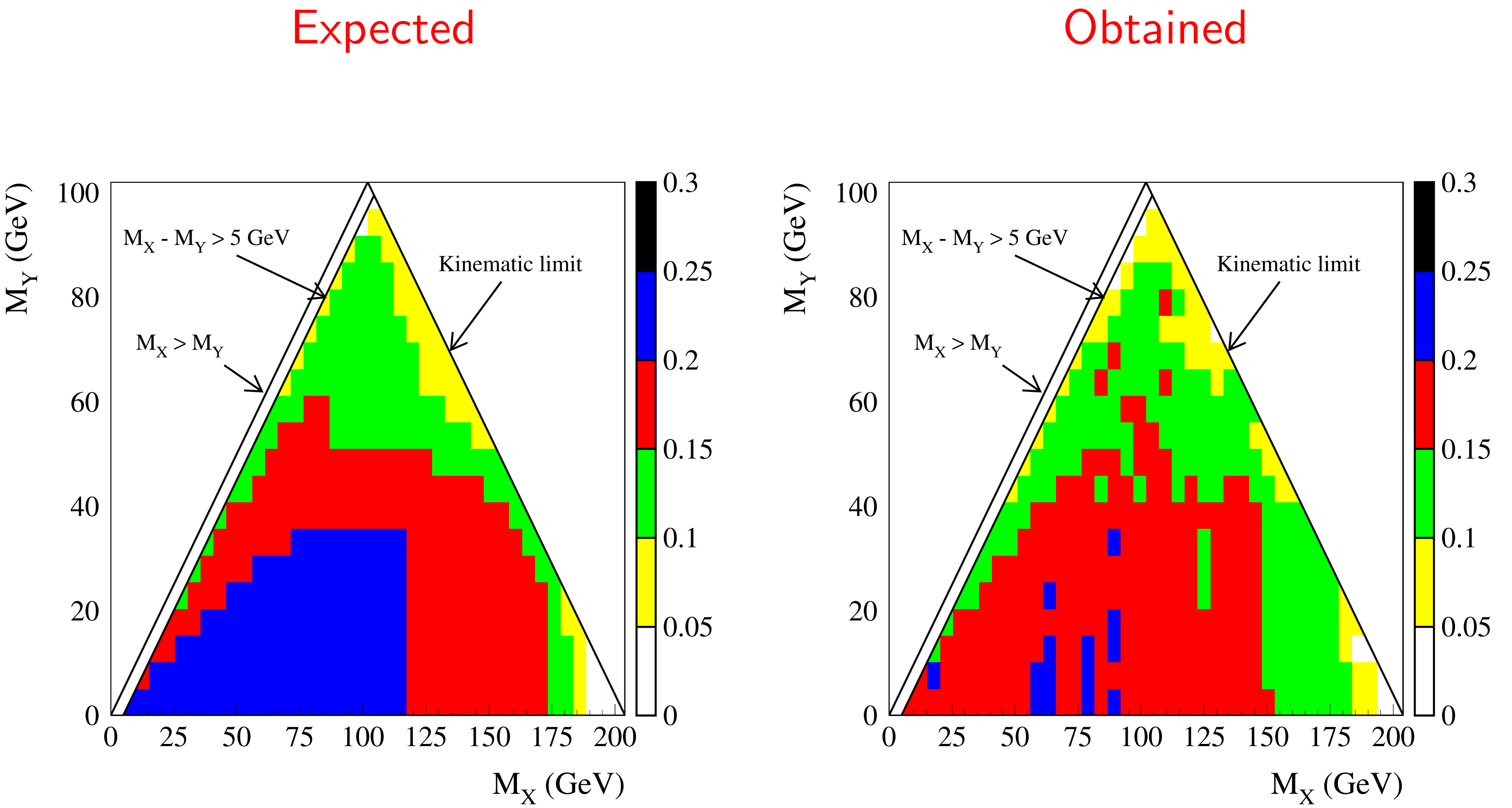
Difference Lr - EC

$$\Delta = \frac{(\sigma_{95}^{EC} - \sigma_{95}^{Lr})}{\sigma_{95}^{EC}},$$





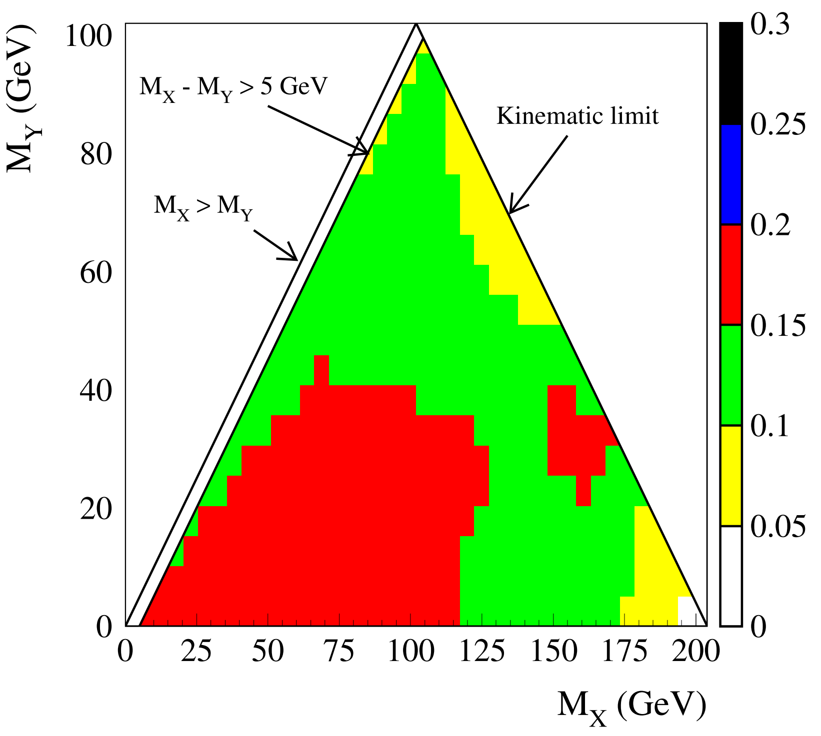
Result, EC



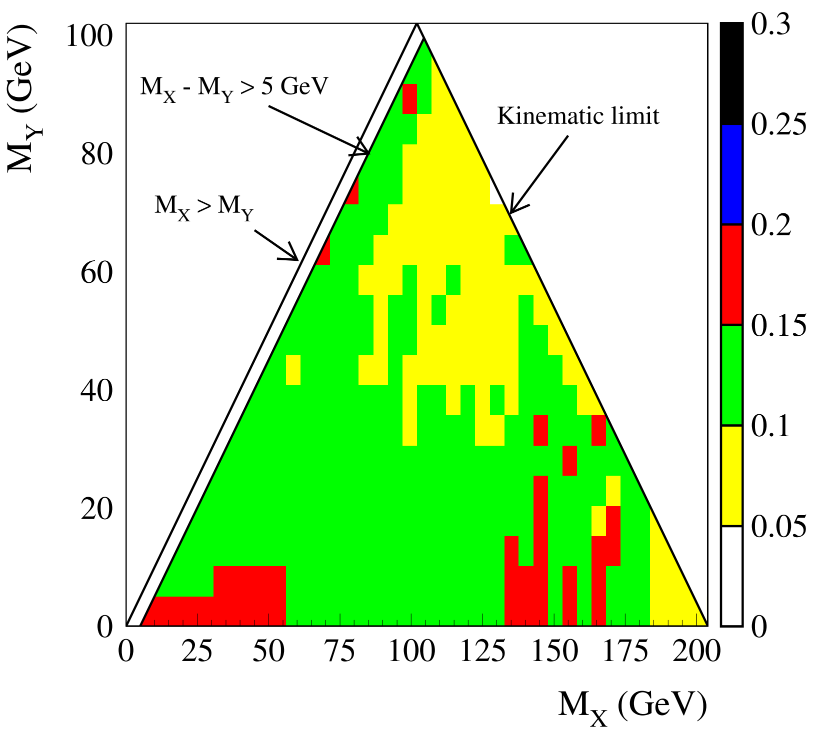
Expected
Obtained
M_Y (GeV)
M_X (GeV)
M_X - M_Y > 5 GeV
M_X > M_Y
Kinematic limit
0
20
40
60
80
100
0
25
50
75
100
125
150
175
200
0
0.05
0.1
0.15
0.2
0.25
0.3

Result, Lr

Expected



Obtained



Conclusions

1, Comparison between the number of selected single photon events in the FEMC and the HPC 2000 data:

	C-proc.	E-Proc.	loss
FEMC:	205 ev.	178 ev.	13 %
HPC:	161 ev.	160 ev.	$<1\%$

Conclusion: The C-processing will be used !

2, All planed analysis projects finished !
Work on a draft 0 has started.