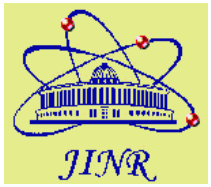
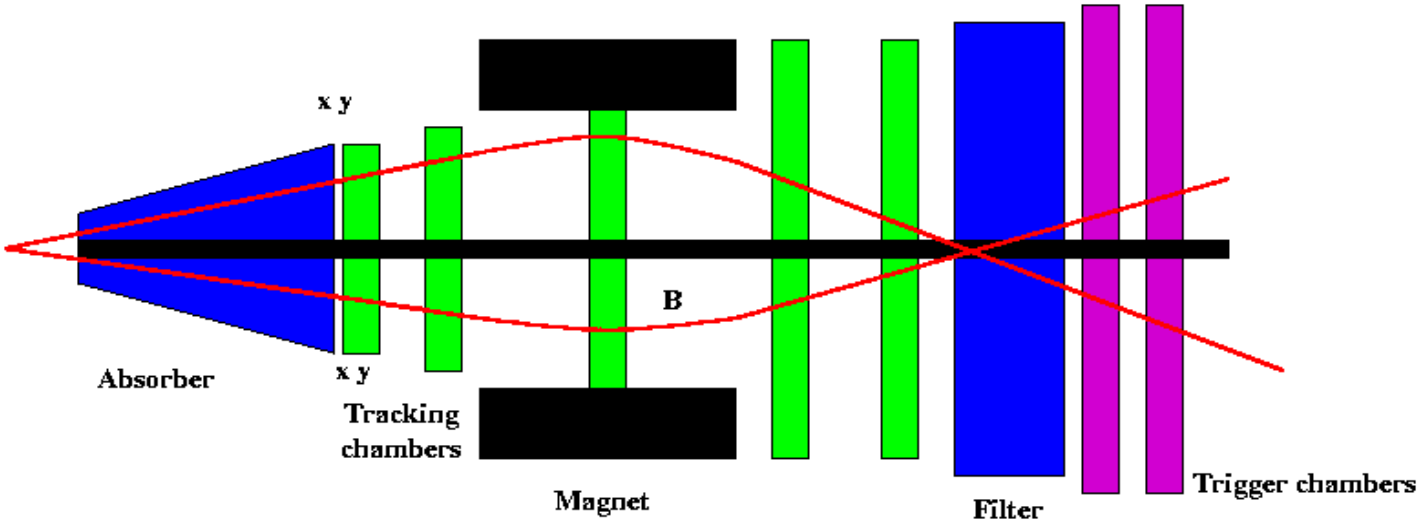


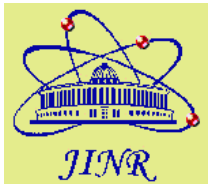
Development of the combined cluster / track finder for the muon spectrometer

A. Zinchenko

JINR, Dubna

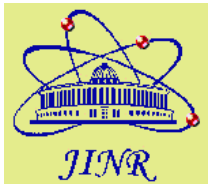
Muon Spectrometer





New reconstruction strategy

- perform full cluster finding in stations 4 and 5 (for track seeding)
- run local cluster finder around extrapolated track positions in stations 1 - 3



Reconstruction methods

Expectation Maximization – based cluster finder

and

extended Kalman filter

Particle generator

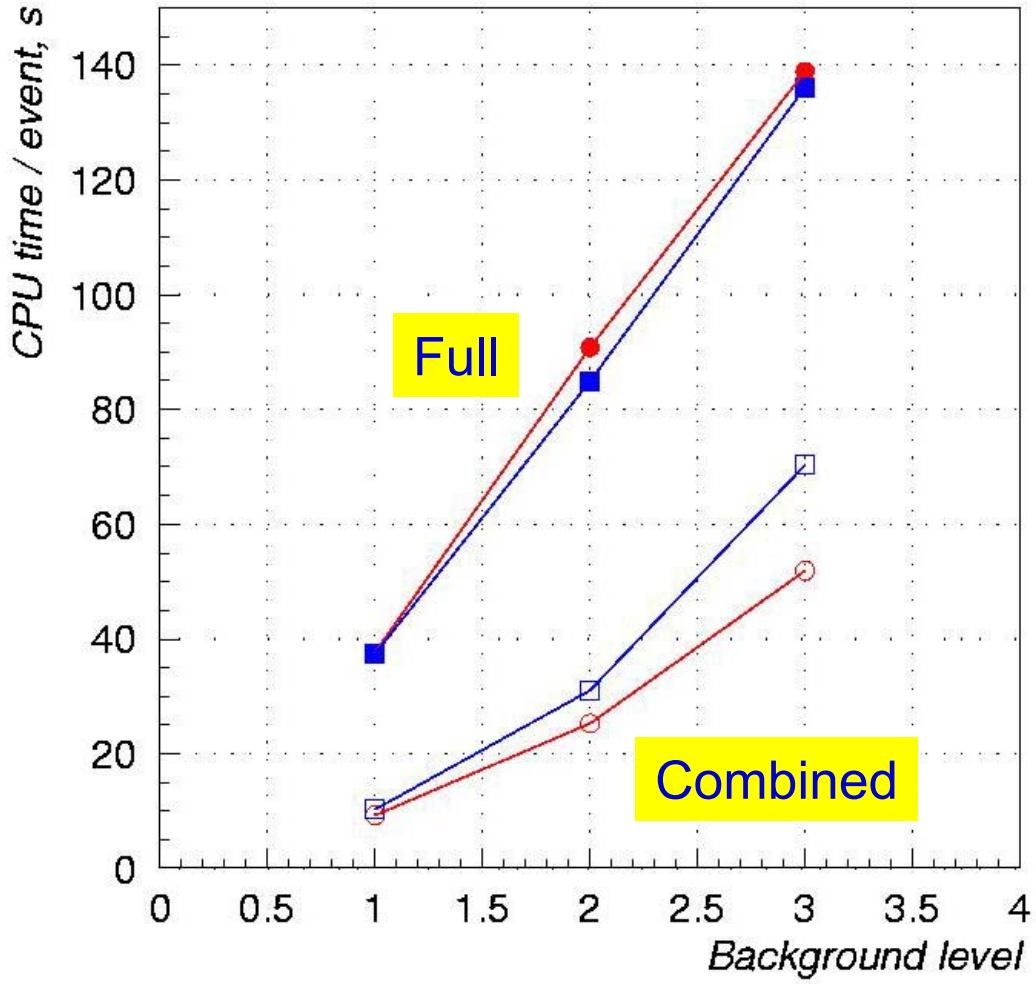
Upsilon → dimuon events mixed with 1, 2 or 3 central Hijing events with impact parameter (0 – 2)

Timing

100 upsilon → dimuon events
(CPU time per event, s)

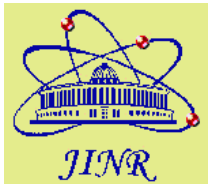
	Full	Combined	Full / Combined
	Window = 8 σ, χ_{max} = 50		
Bkg-1	37.6	9.3	4.0
Bkg-2	90.8	25.3	3.6
Bkg-3	138.9	51.9	2.7
	Window = 12 σ, χ_{max} = 100		
Bkg-1	37.4	10.3	3.6
Bkg-2	84.9	31.0	2.7
Bkg-3	136.1	70.3	1.9

Timing



8 σ

12 σ



Summary

Combined cluster / track finder can provide significant time savings

but

at the expense of missing rec. points