

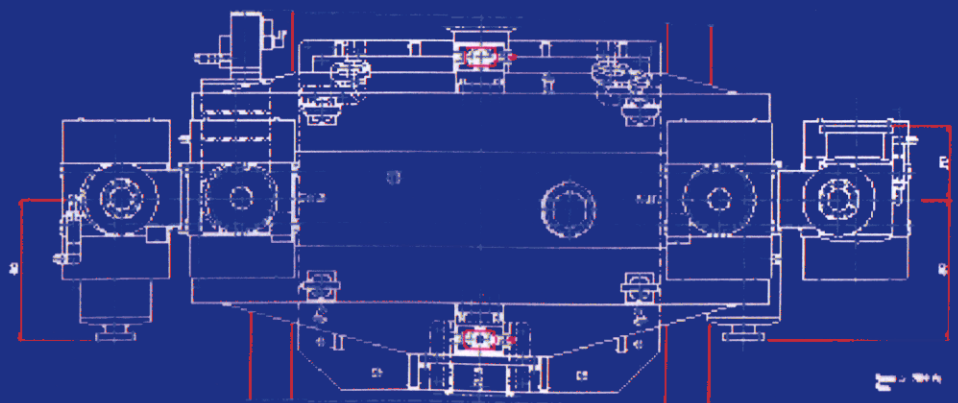
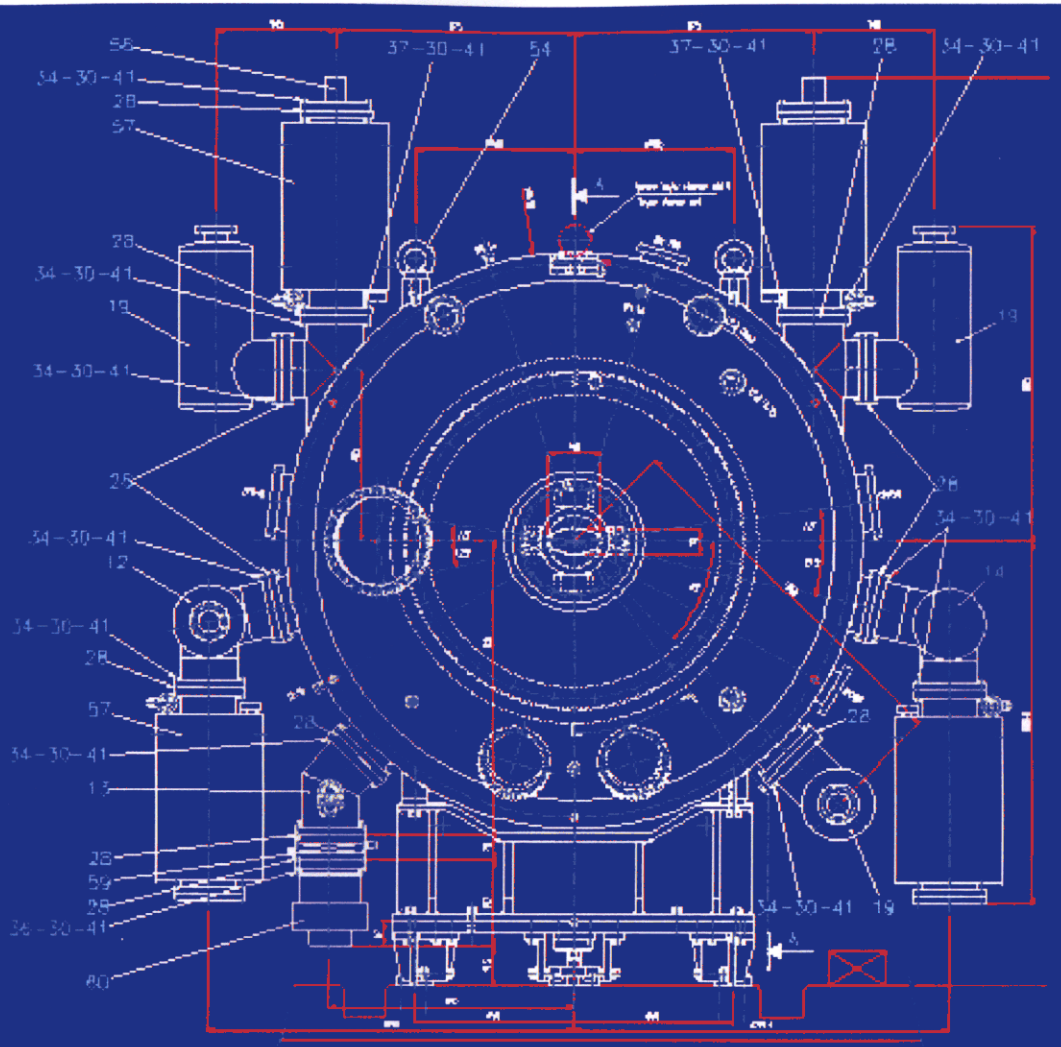
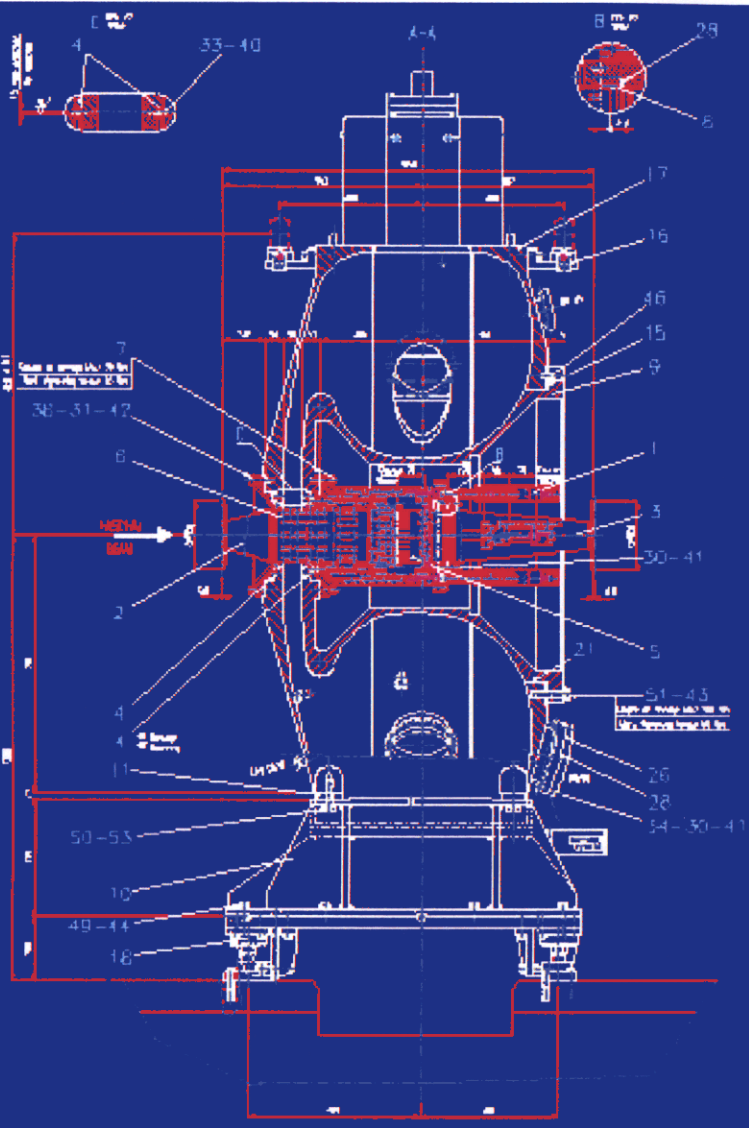


RF approach to front end

- ◆ the overall system
- ◆ beam dynamics for each section
- ◆ the pros and cons, the technical challenges...
- ◆ future work
- ◆ feedback

Alessandra Lombardi





30m
Decay

30m
Rotation

44m
Cooling I

32m
Acc.

MATCH

112m
Cooling II

30x 1m RF
40 MHz, 2MV/m, 0°

4x1m rf @40 MHz,
2MV/m, 0°
24 cm H

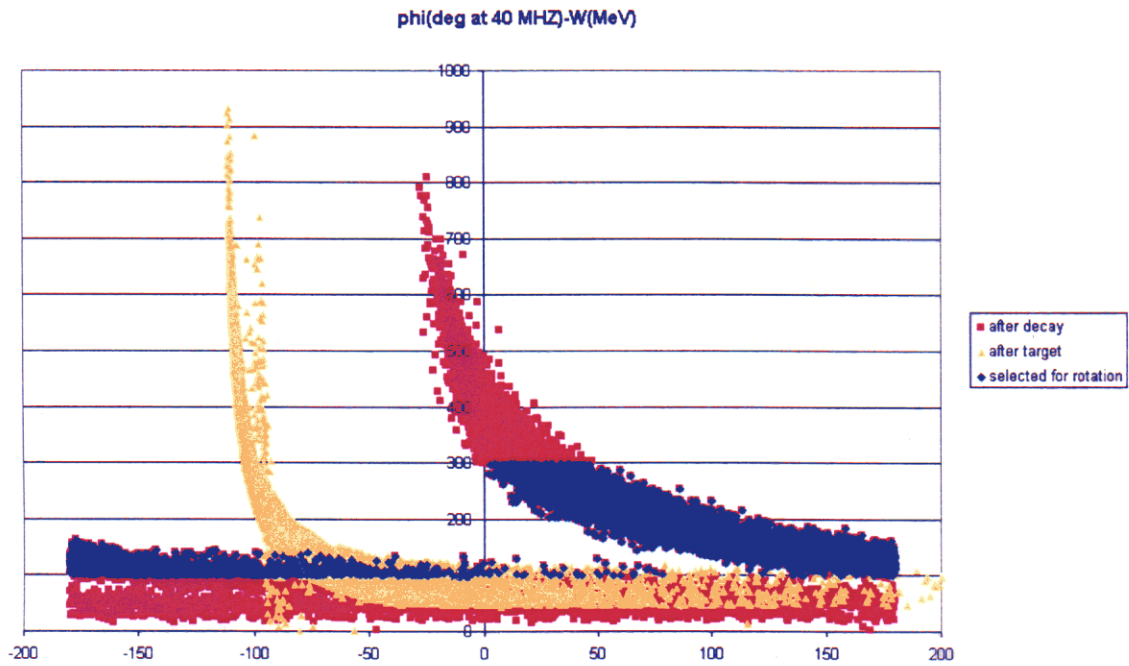
same as Cooling I,
no Hydrogen

8x0.5m rf @80 MHz,
4MV/m, 0°
40 cm H

same as above,
30°
no H in every 5th cell



END OF DECAY

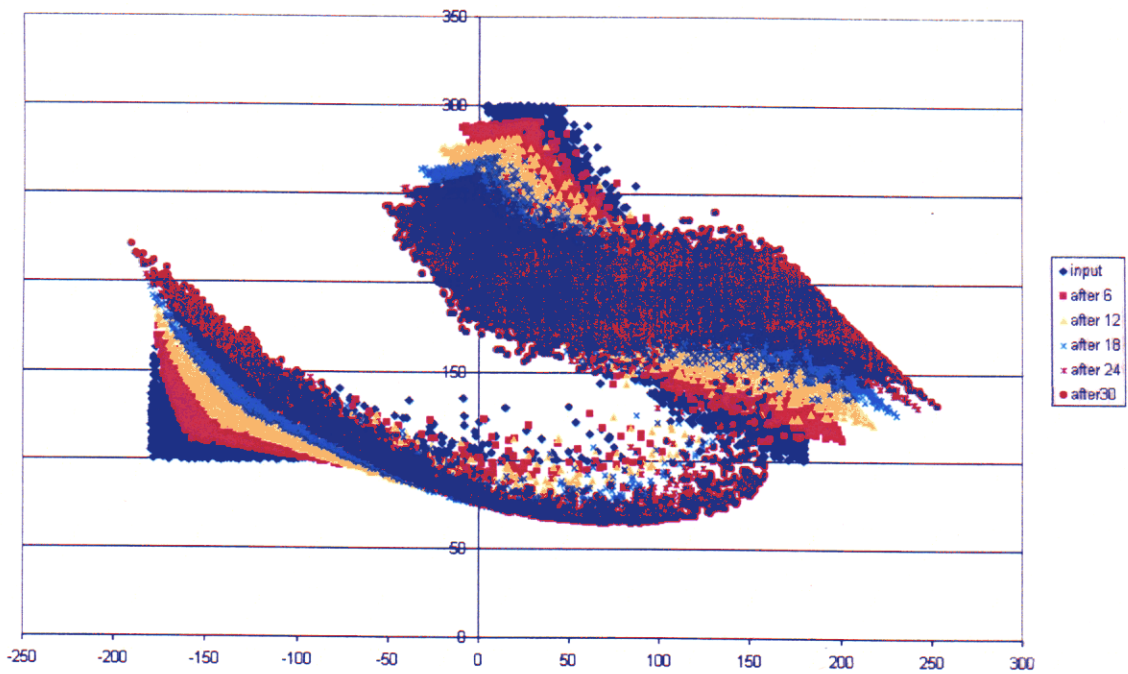
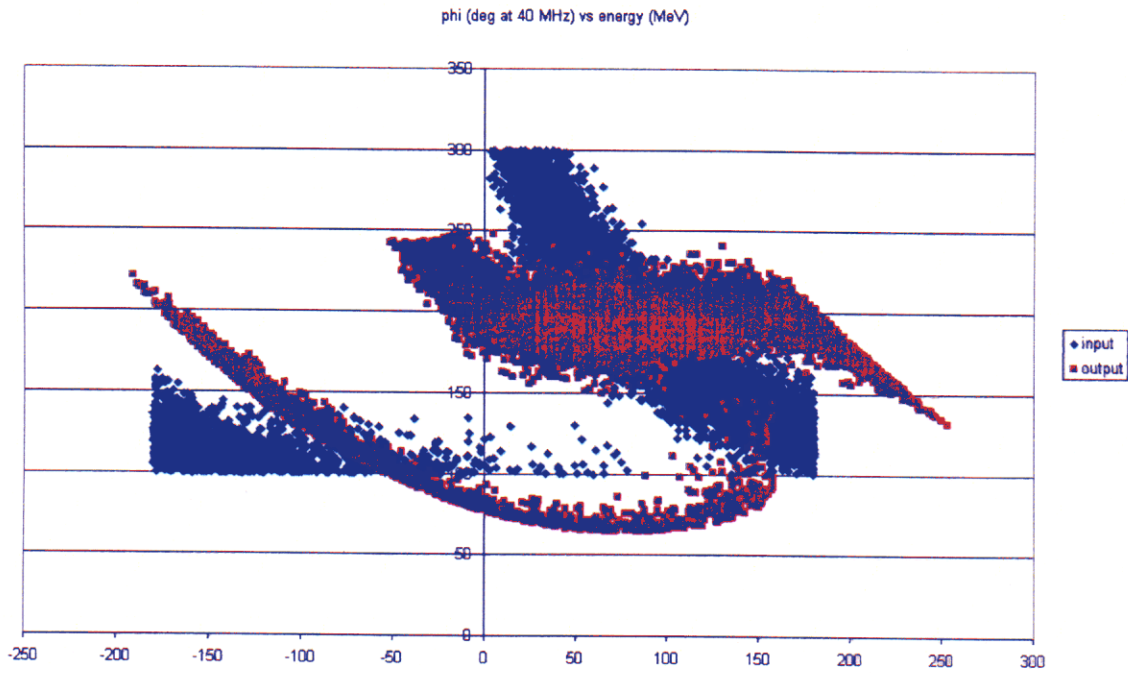


≈ 50 % of the muons are selected

there is no improvement of the decay channel that can increase this number

ROTATION

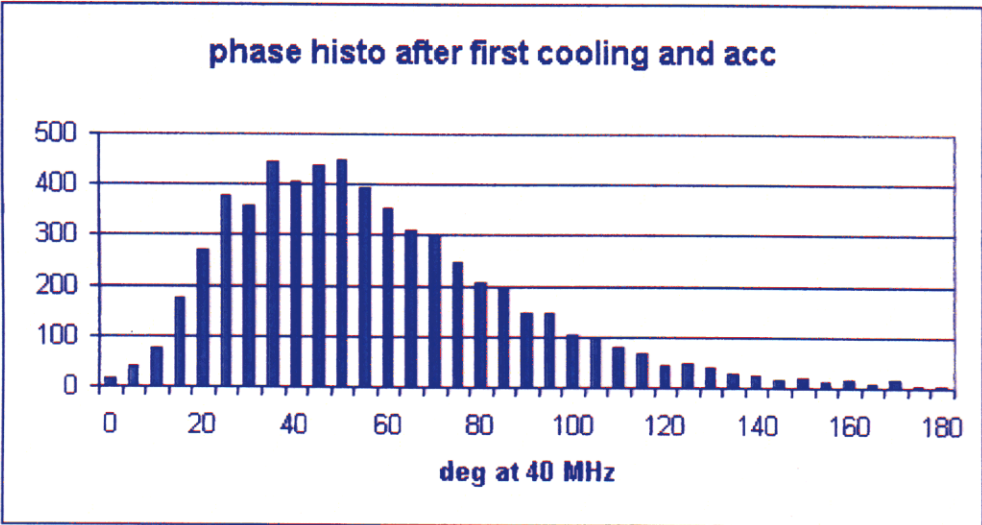
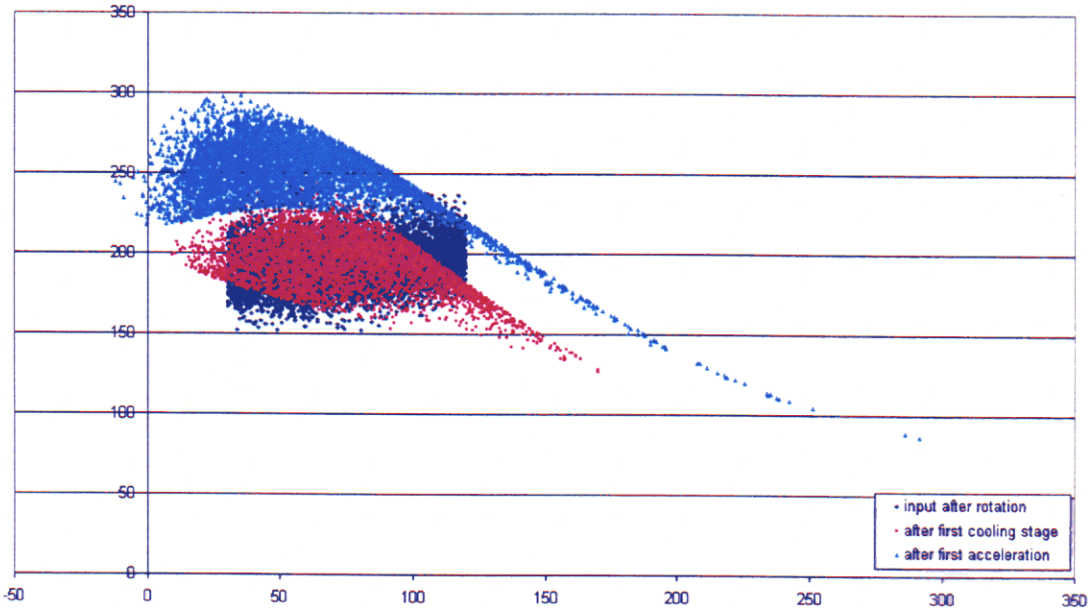
30 cavities , 1 m long, 40 MHz, 2MV/m, 1.8 Tesla solenoid around (or adjacent)



rotation : 3 deg / cell , rf defocusing small

COOLING-40MHZ

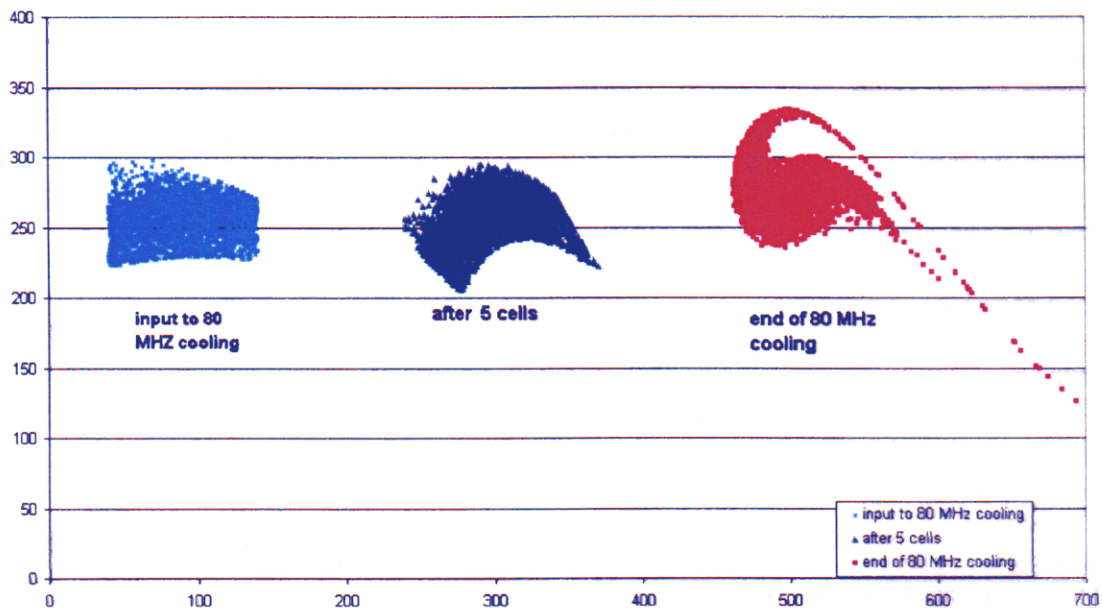
phi - kin energy (deg at 40 MHz-MeV)



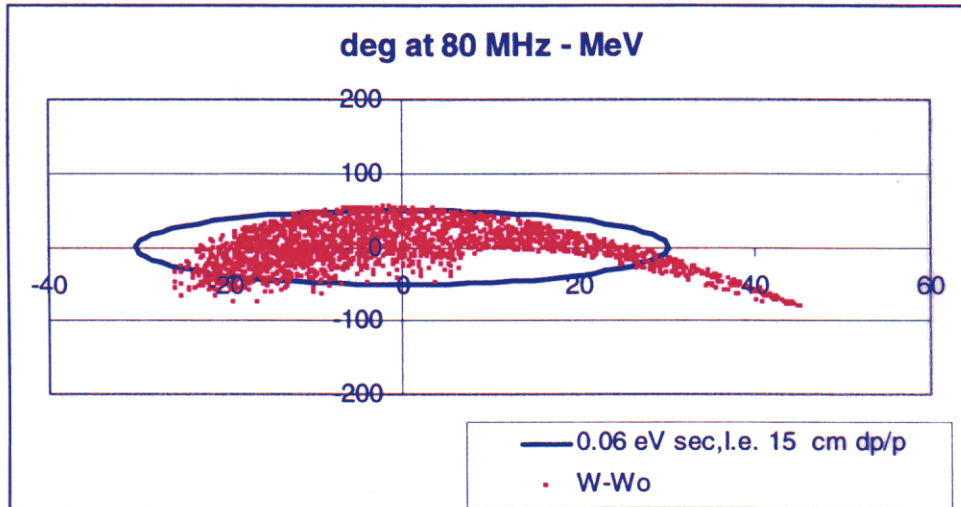
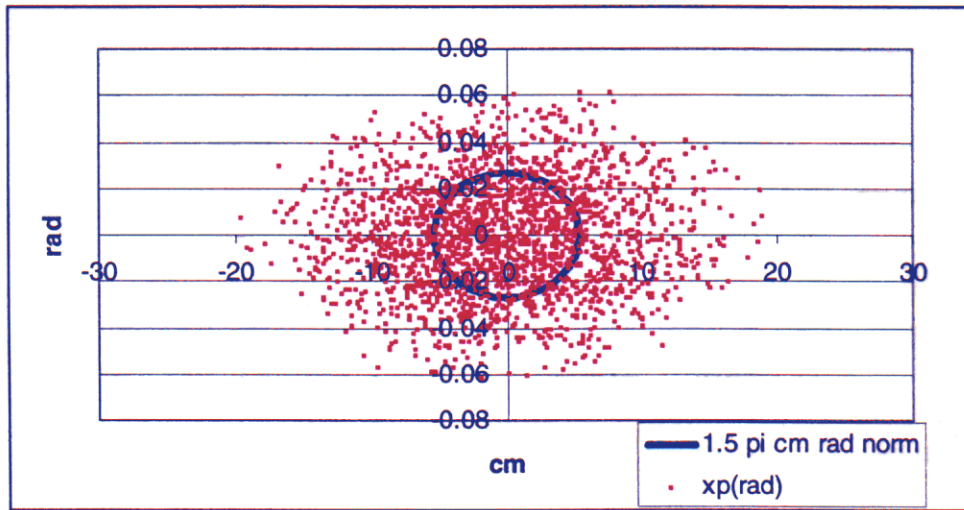
65% of the particles are in 90 degrees at 80 MHz

COOLING-80MHz

phi - kin energy (deg at 80 MHz-MeV)



40-80 MHz scheme at 1 GeV



PARTICLE BUDGET

At the moment :

0.012 μ /proton i.e. $1.2 \cdot 10^{21}$ μ /year of which half are in the re-circulator acceptance (1.5 pi cm rad, 15 pi cm dp/p)

pion/muon budget 40-80 MHz scheme

