Some preliminary parameters for FELIX

(remarks and questions to Karsten Eggert)

Luminosities and run scenario

beam	energy $\sqrt{s}$(TeV)	L ($cm^{-2}sec^{-1}$)	t run/year(sec)	bunch spacing
p - p	14	$10^{30} - 10^{32}$	10^7	25 nsec
Pb- Pb	1148	$3 \cdot 10^{27}$	10^6	125 nsec
Ca- Ca	280	$4 \cdot 10^{30}$	$10^5 - 10^6$	25 nsec
p - Pb	126	10^{30}	10^5	125 nsec
p - Ca	63	10^{31}	10^5	25 nsec

Acceptances and momentum resolutions for charged particles

pseudorapidity range	magnet	resolution
$0 < \|\eta\| < 2$	ALEPH	δp/p = 1.2 % + 0.03 % $\cdot$ p_t
$2 < \|\eta\| < 6$	UA1	δp/p = 0.4 % + 0.002 % $\cdot$ p
$6 < \|\eta\| < 8.5$	D0 + $D1^1$	δp/p = 0.1 % + $3 \cdot 10^{-4}$ % $\cdot$ p
$8.5 < \|\eta\| < 10$	$D1^2$ + $D1^3$	δp/p = 0.05% + $1 \cdot 10^{-4}$ % $\cdot$ p

The detection efficiency per track is better than 98 %.
The lowest detectable transverse momentum is less than 50 MeV.

Diffractive protons

detectable range: (p beam - p diffr.)/p beam = 10^{-1} to $2 \cdot 10^{-3}$
δ(p beam - p diffr.)/(p beam - p diffr.) = 10%

Elastically scattered protons

t - range: 10^{-2} GeV^2 - 20 GeV^2

Electromagnetic calorimetry

energy resolution for photons and electrons :	δE/E=0.005 $\oplus$ 0.08/$\sqrt{E}$ (E in GeV)
granularity :	$\Delta\eta \cdot \Delta\phi$= 0.1 $\cdot$ 0.1
energy threshold :	E thr = 0.2 GeV

The scenario in the range $|\eta|$ <2 is not yet defined; assume as above for the moment. For small angles the calorimeter is subdivided in squares of $\delta R = 0.1 \cdot R$ and δs = $0.1 \cdot R$, i.e. 64 subdivisions in ϕ.

Particle identification for the region $|\eta| > 2$

Electrons

Identification possible by comparison of momentum measurement in the spectrometer and energy measurement in the electromagnetic calorimeter.

Muons

Identification possible for transverse momenta above 2 GeV.