To the memory of M. P. Rekalo

MEASUREMENT OF THE DEUTERON TENSOR POLARIZATION AT THE $^3He \to d + p$ VERTEX UP TO INTERNAL MOMENTA OF 0.44 GEV/C

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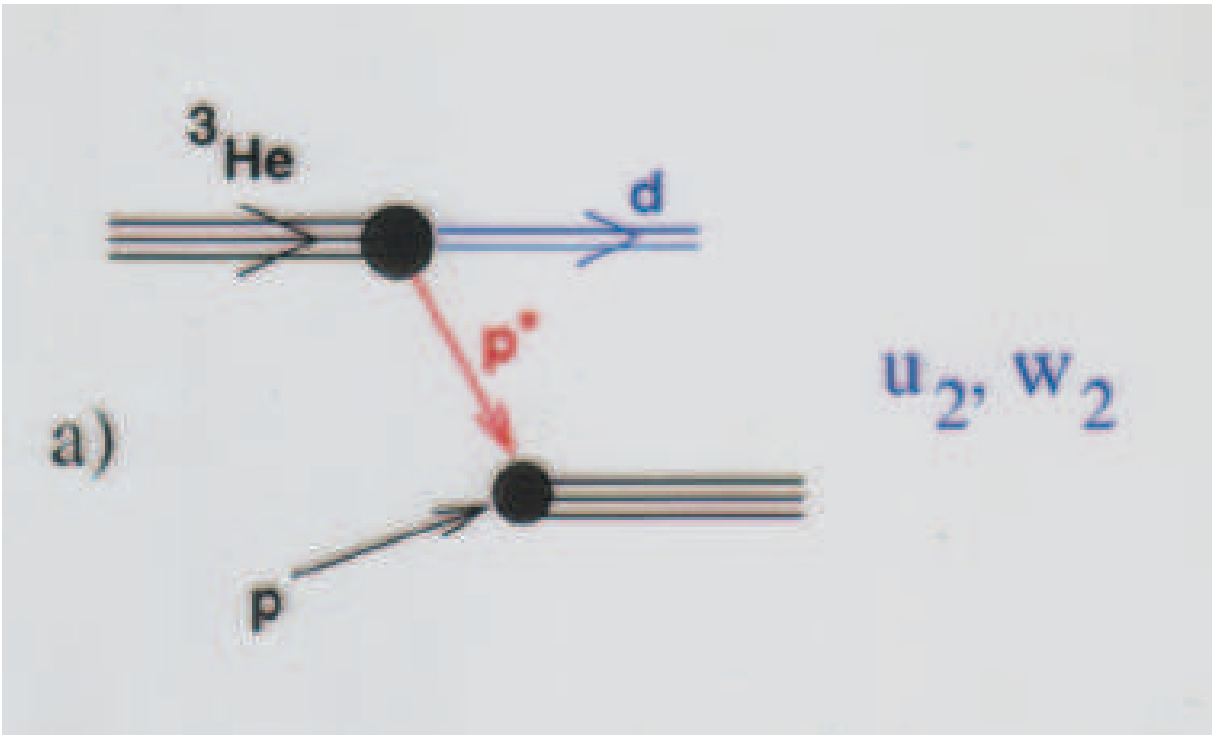


$$\rho_{20} = -\sqrt{2}\frac{2u_2w_2 + w^2}{2u_2^2 + (u_2 + w_2)^2}(Rekalo)$$

The axis of alignment is
along internal momentum,
in Lab system – along Lab momentum

$$\sigma = \sigma_0(1 + \rho_{20}T_{20})$$

THE EXPERIMENT : $^{1}H(^{3}He, \vec{d})X$

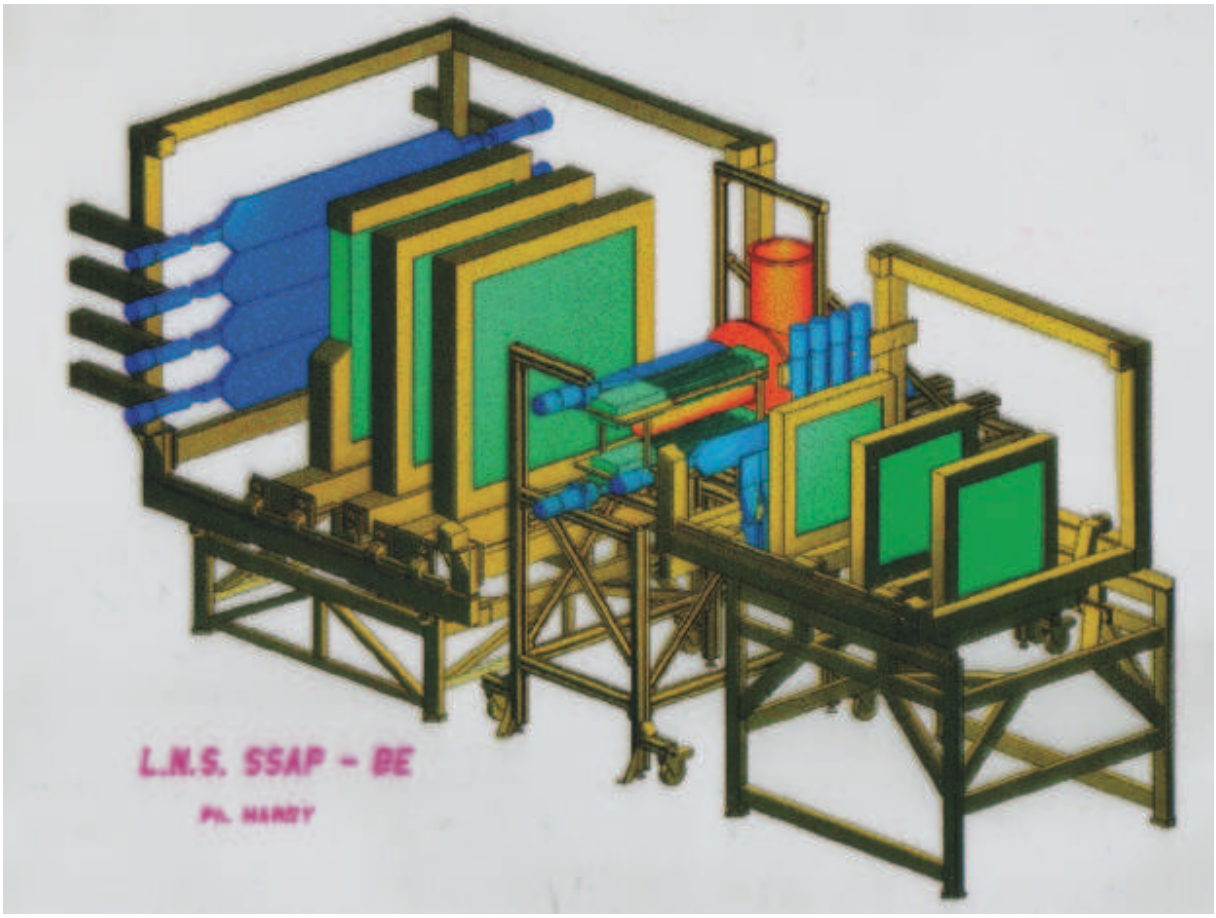
1) **Calibration of HYPOM**

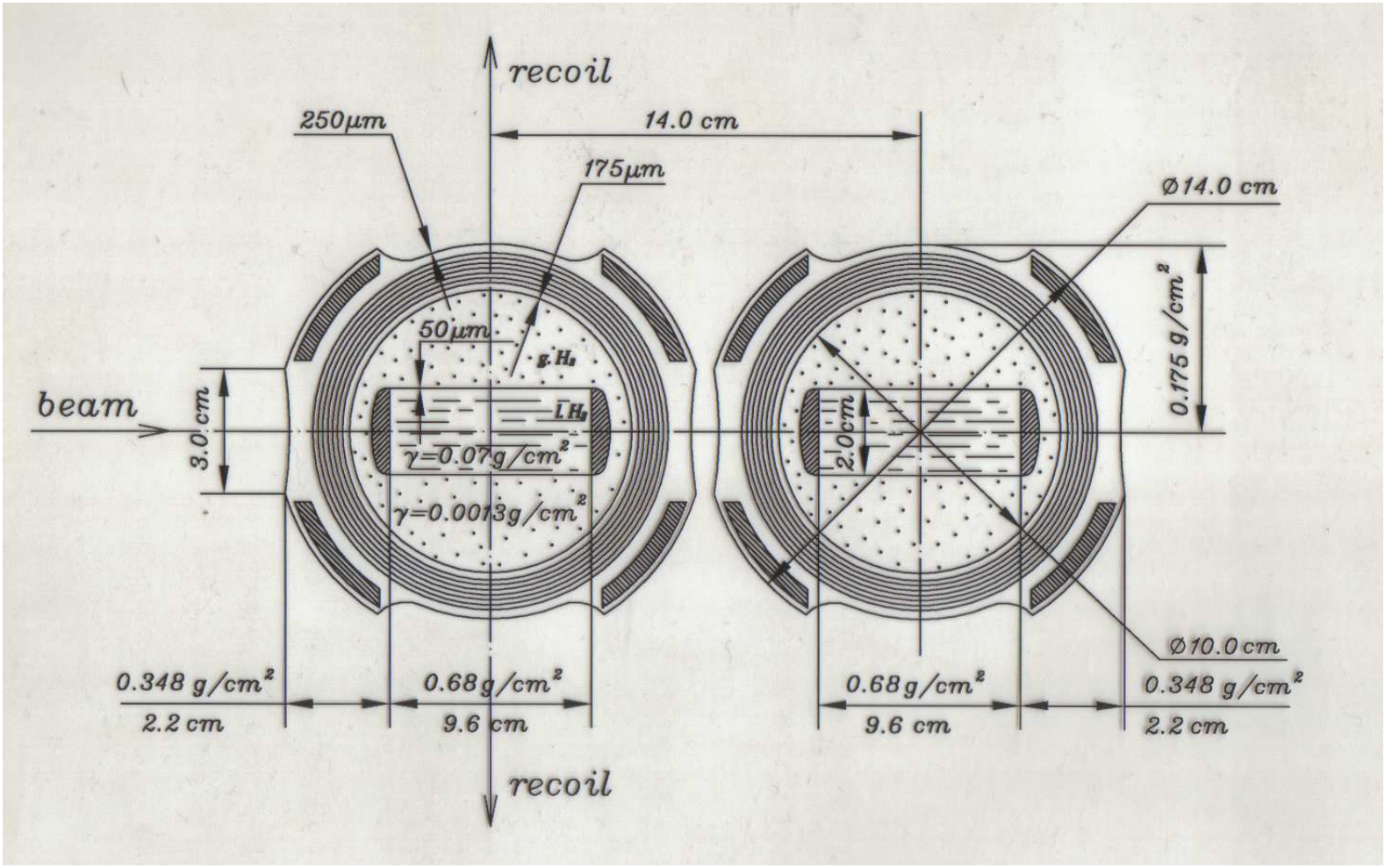
direct $\vec{d}$ beam E_d = 3.773, 3.390 GeV/c

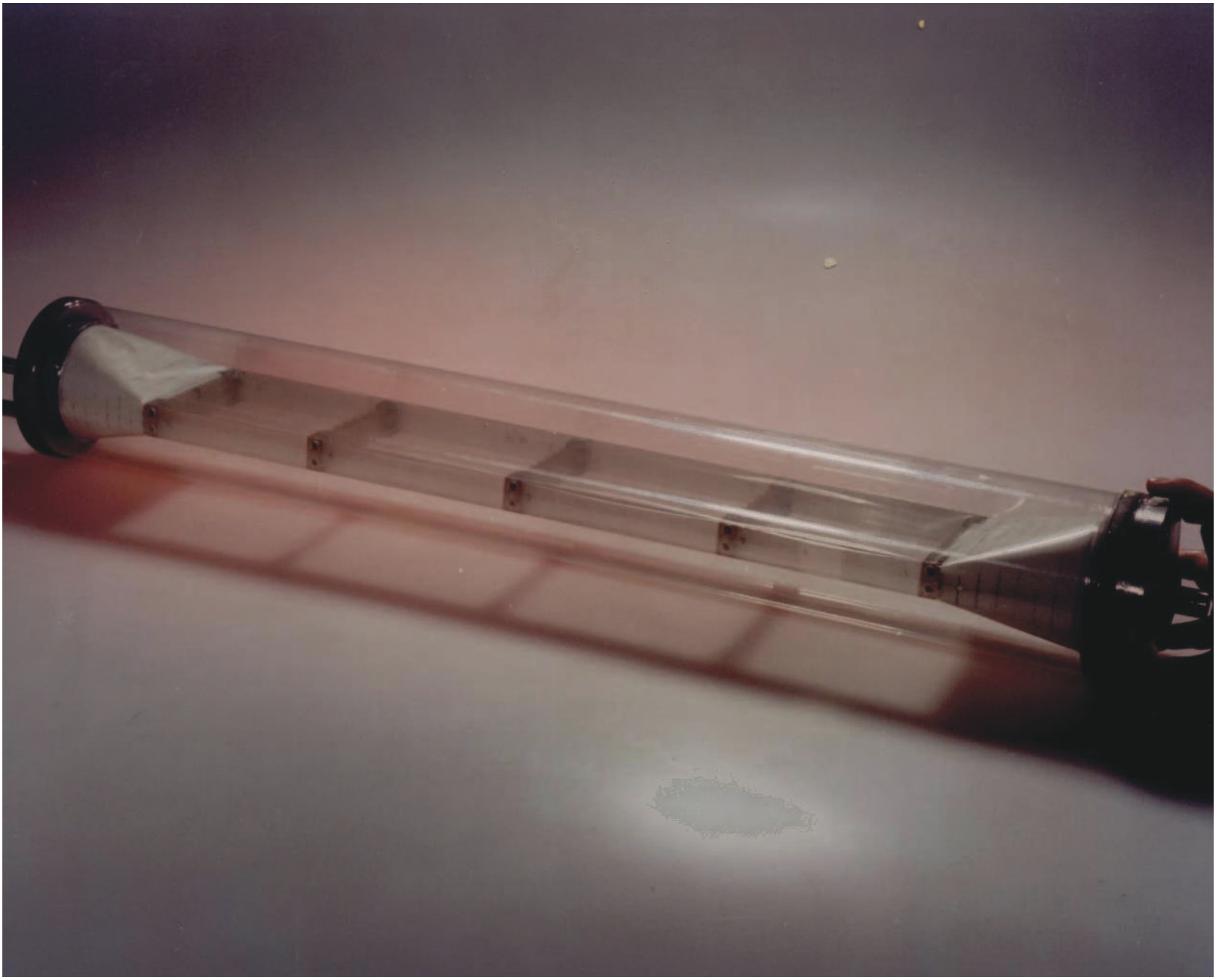
2) ^{3}He beam E_k = 2.84, 2.99, 3.51, 2.58 GeV/c

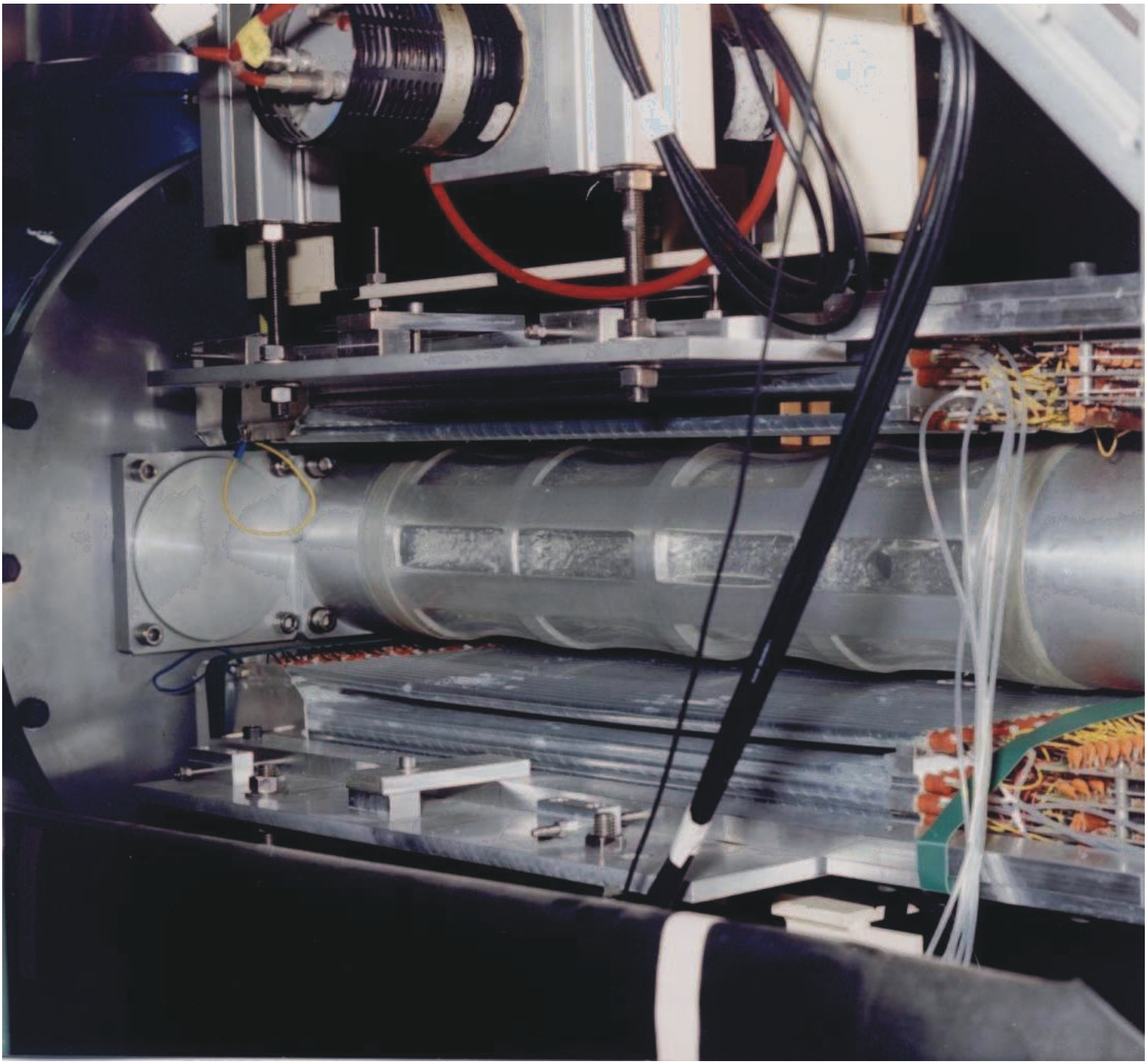
==> p_d = 3.773 GeV/c *at 0 °*

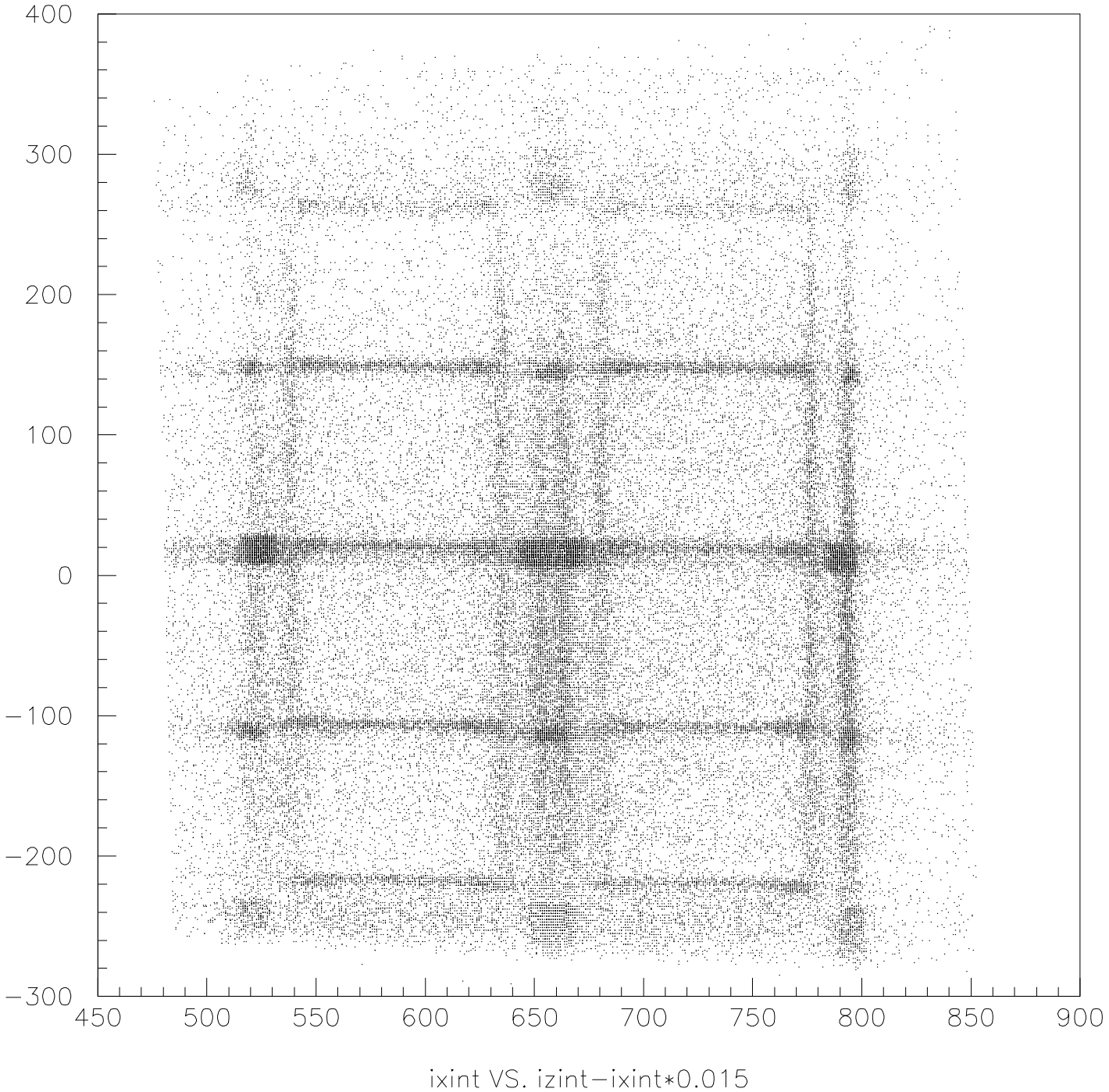
k_d = *0.28, 0.20, 0.00, 0.36, 0.44 GeV/c*

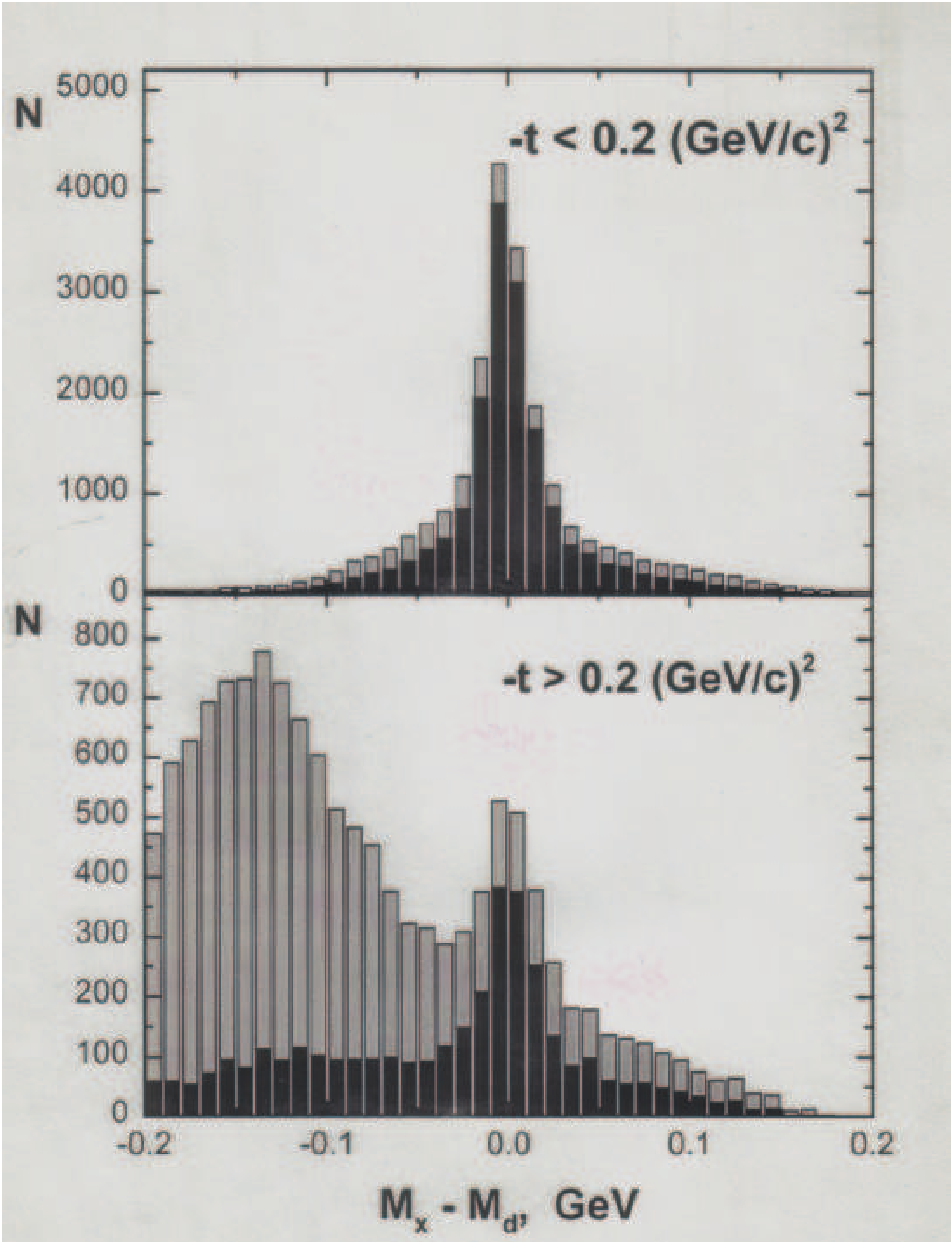

L.N.S. SSAP - BE
Ph. HARDY

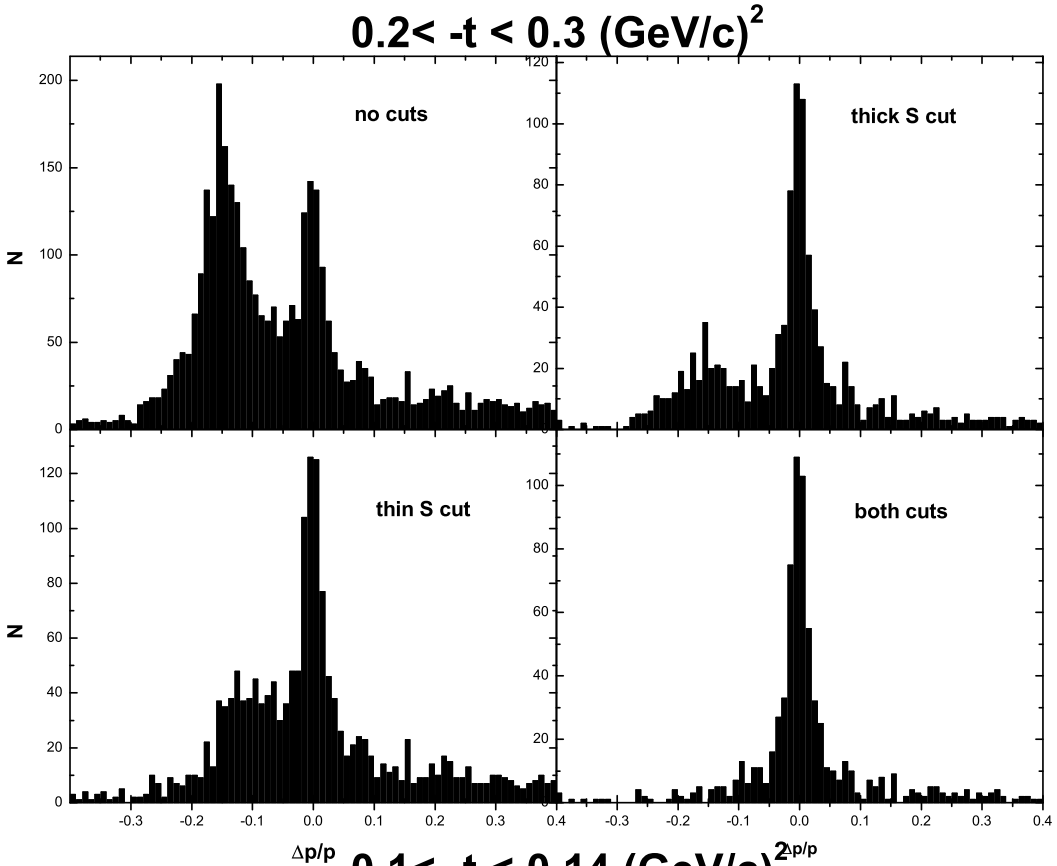

recoil
250μm
14.0 cm
175μm
Ø14.0 cm
50μm
g.H₂
l.H₂
beam
3.0 cm
γ=0.07g/cm²
γ=0.0013g/cm²
2.0cm
0.175 g/cm²
Ø10.0 cm
0.348 g/cm²
0.68g/cm²
0.68g/cm²
0.348 g/cm²
2.2 cm
9.6 cm
9.6 cm
2.2 cm
recoil

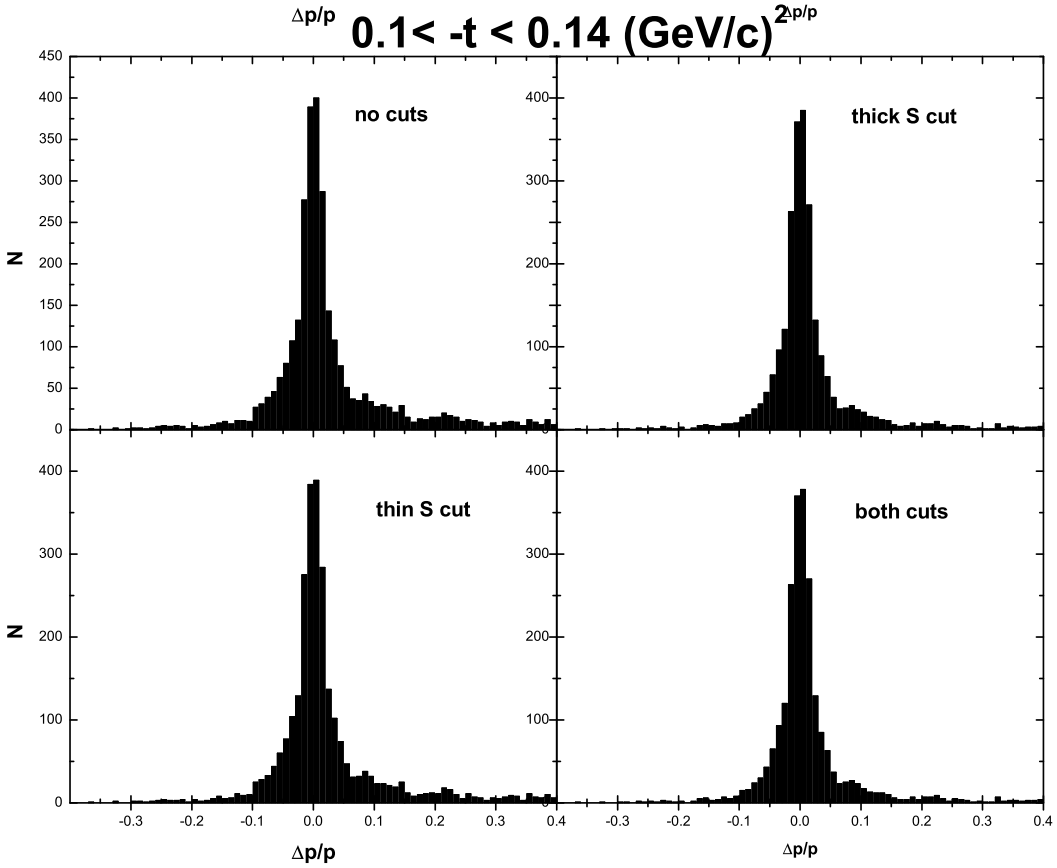


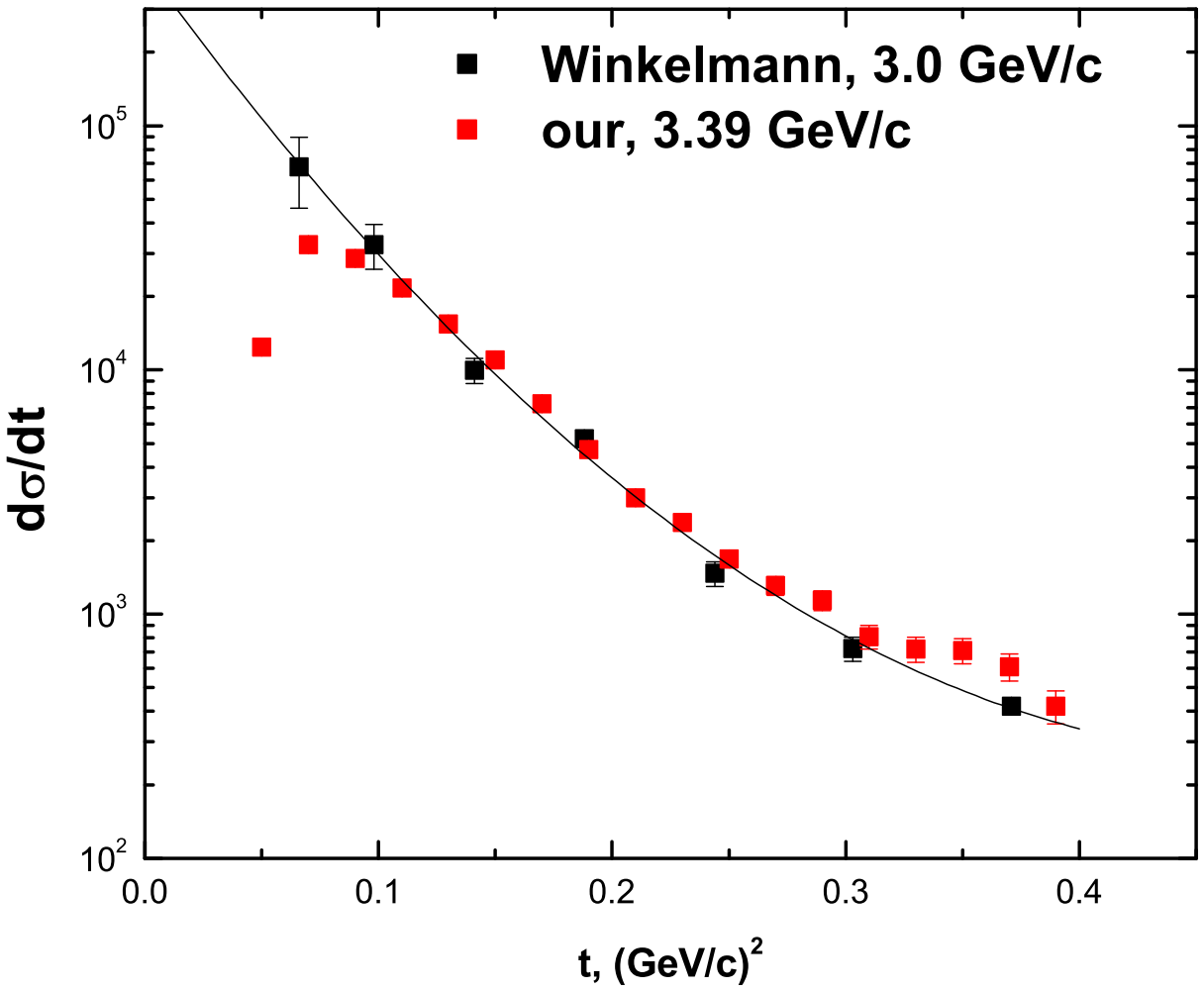



400
300
200
100
0
−100
−200
−300
450
500
550
600
650
700
750
800
850
900
ixint VS. izint−ixint*0.015

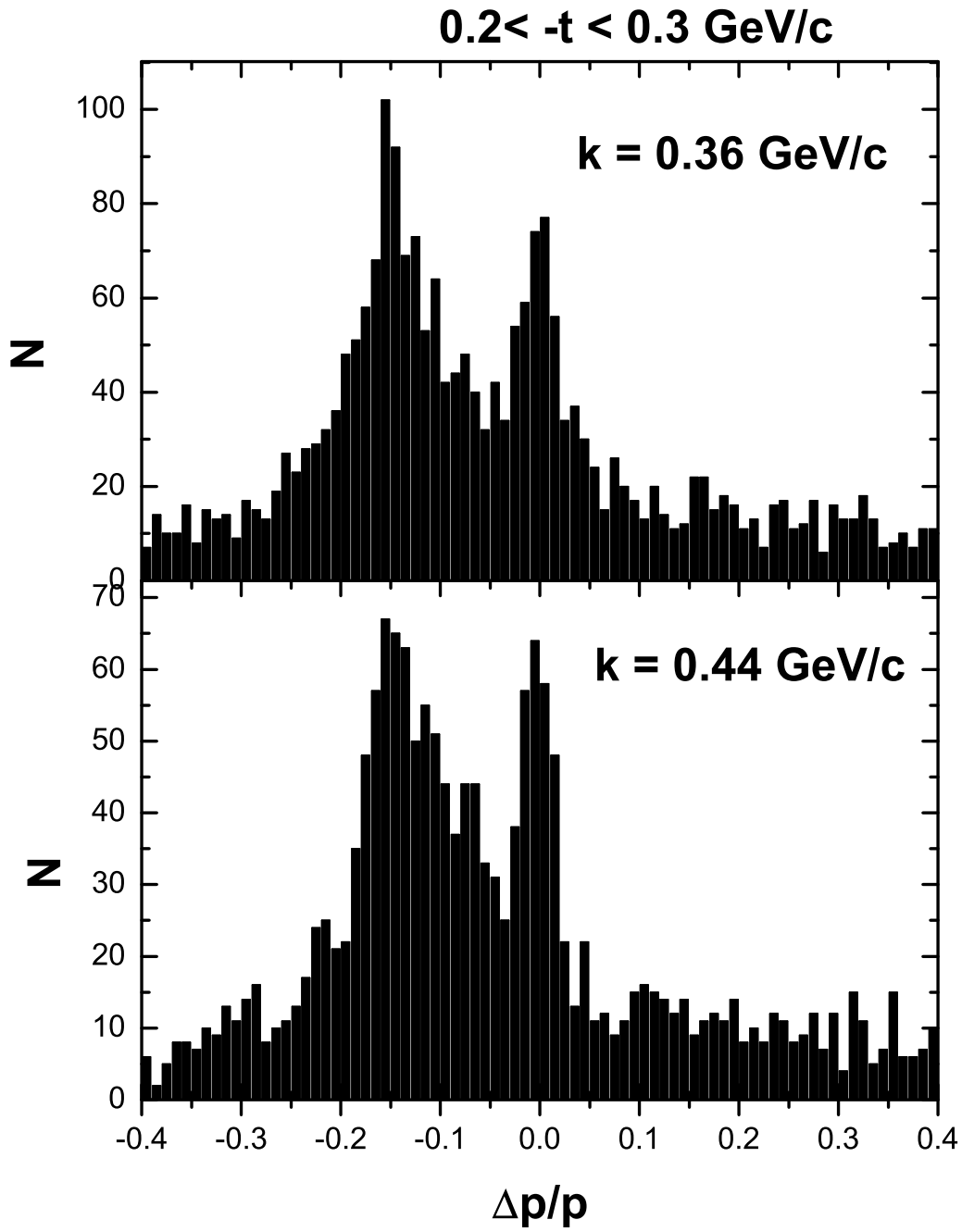

N
5000
4000
3000
2000
1000
0
-t < 0.2 (GeV/c)²
N
800
700
600
500
400
300
200
100
0
-t > 0.2 (GeV/c)²
-0.2
-0.1
0.0
0.1
0.2
M_x - M_d, GeV

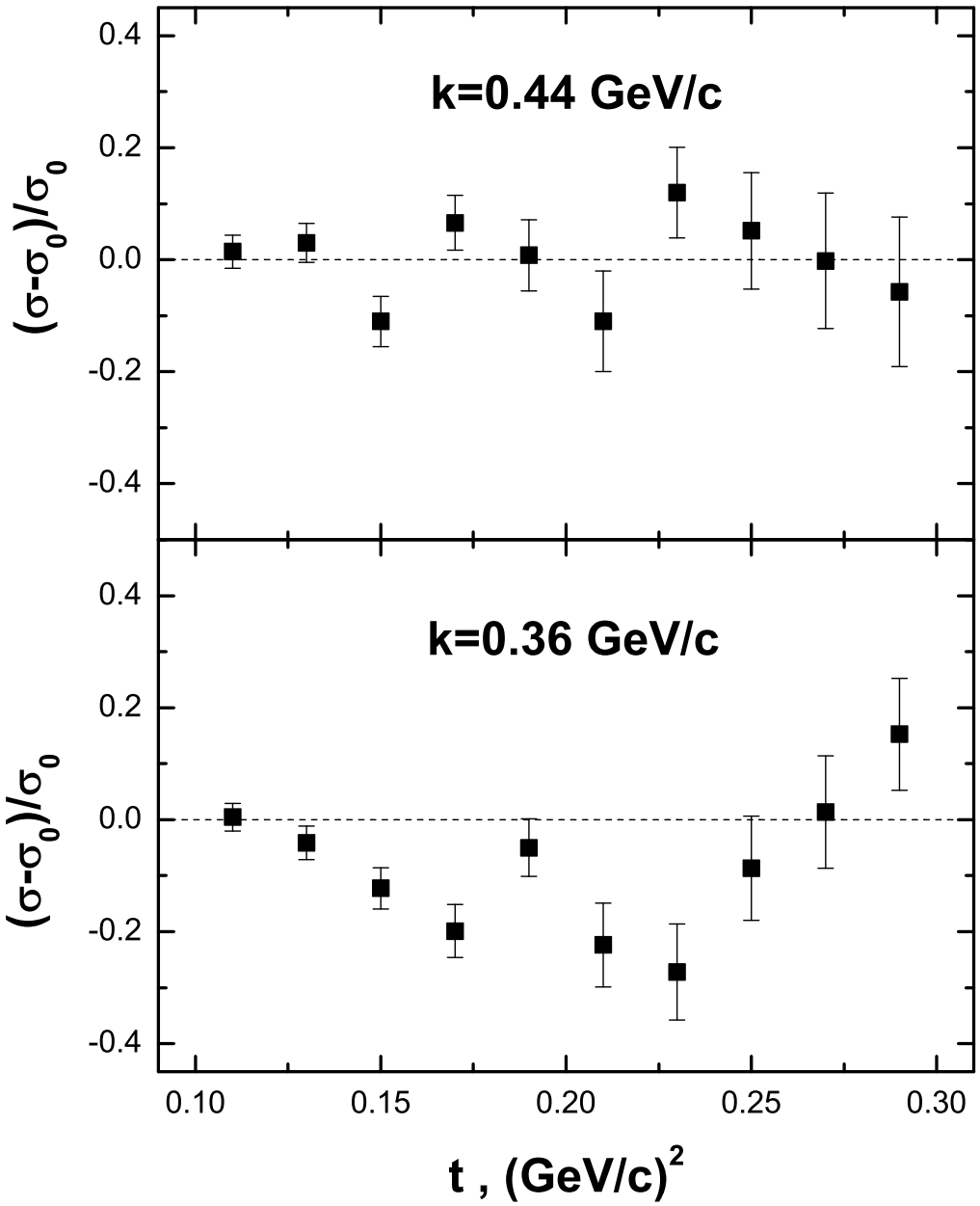

0.2< -t < 0.3 (GeV/c)2
no cuts
thick S cut
thin S cut
both cuts
N
Δp/p


0.1< -t < 0.14 (GeV/c)2
no cuts
thick S cut
thin S cut
both cuts
N
Δp/p

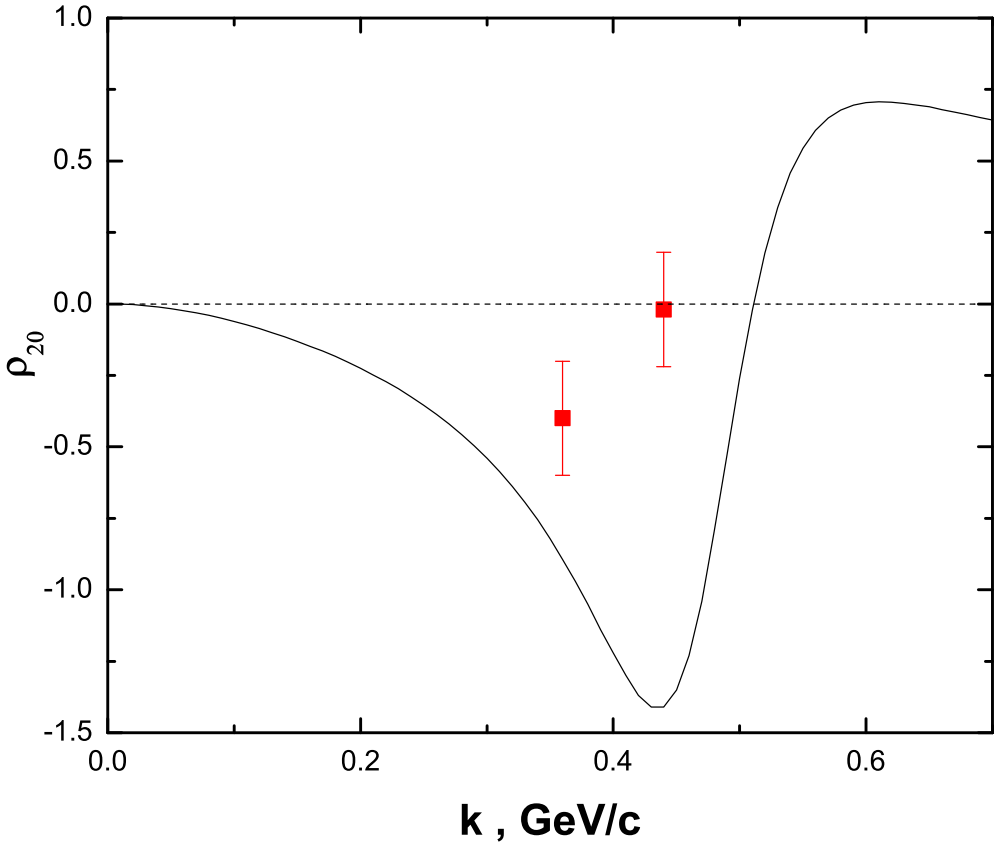


Winkelmann et al., PRC 21 (1980) 2535


0.2< -t < 0.3 GeV/c
k = 0.36 GeV/c
k = 0.44 GeV/c
N
N
Δp/p
100
80
60
40
20
0
70
60
50
40
30
20
10
0
-0.4
-0.3
-0.2
-0.1
0.0
0.1
0.2
0.3
0.4



$$\frac{\sigma - \sigma_0}{\sigma_0} = \rho_{20} T_{20}$$



$$\rho_{20} = -\sqrt{2}\frac{2u_2w_2 + w^2}{2u_2^2 + (u_2 + w_2)^2}(Rekalo)$$

u_2, v_2 - Germond, Wilkin parametrization of Schiavilla, Pandharipande, Wiranga table calculations.