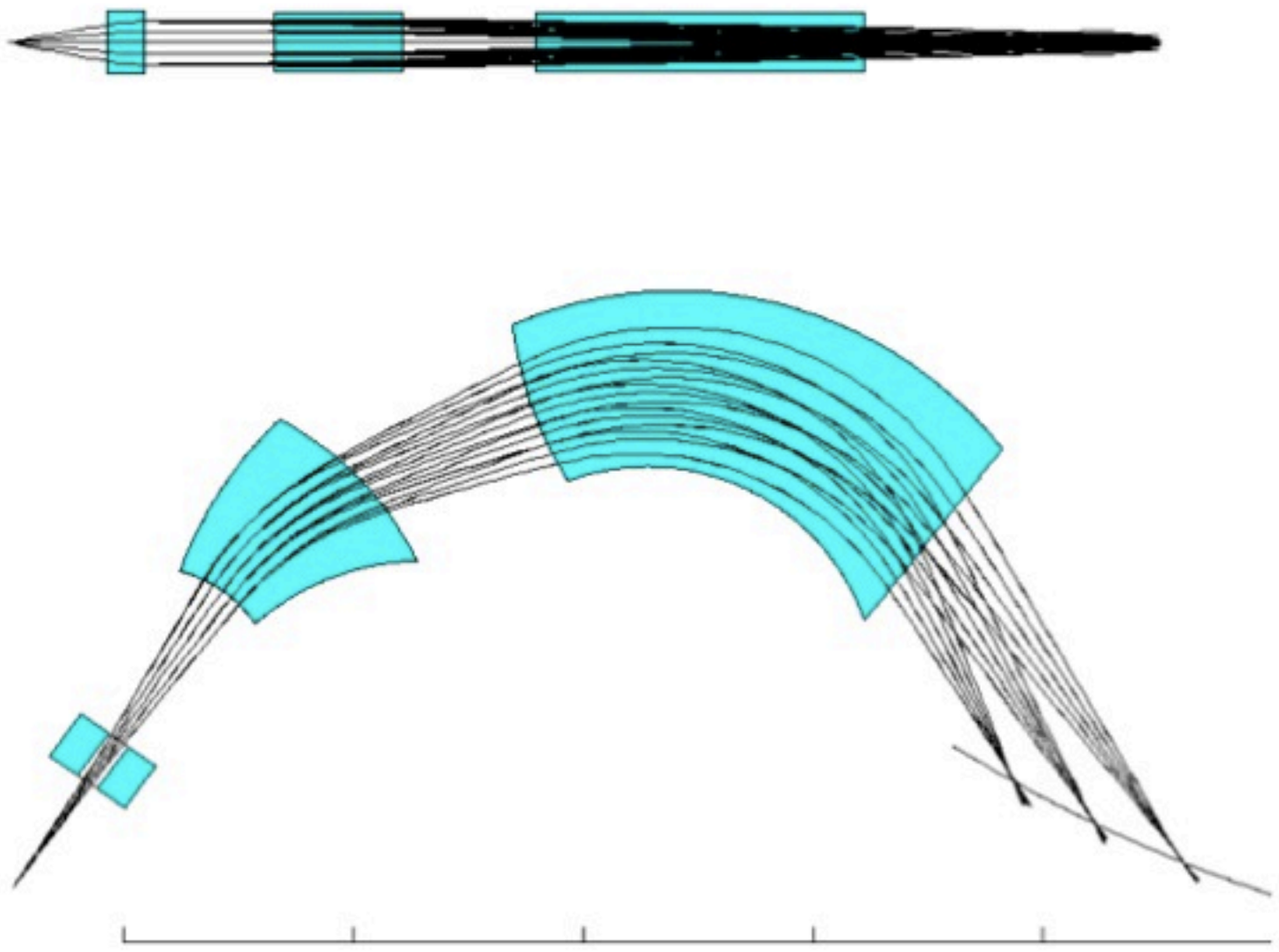
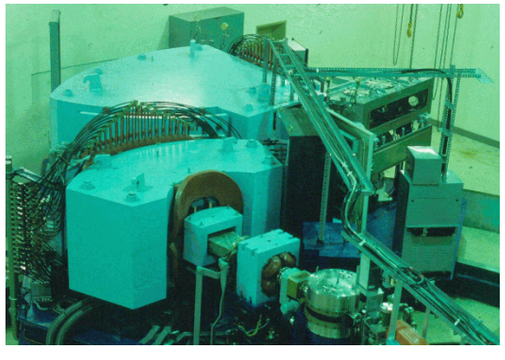
20121228

KYO

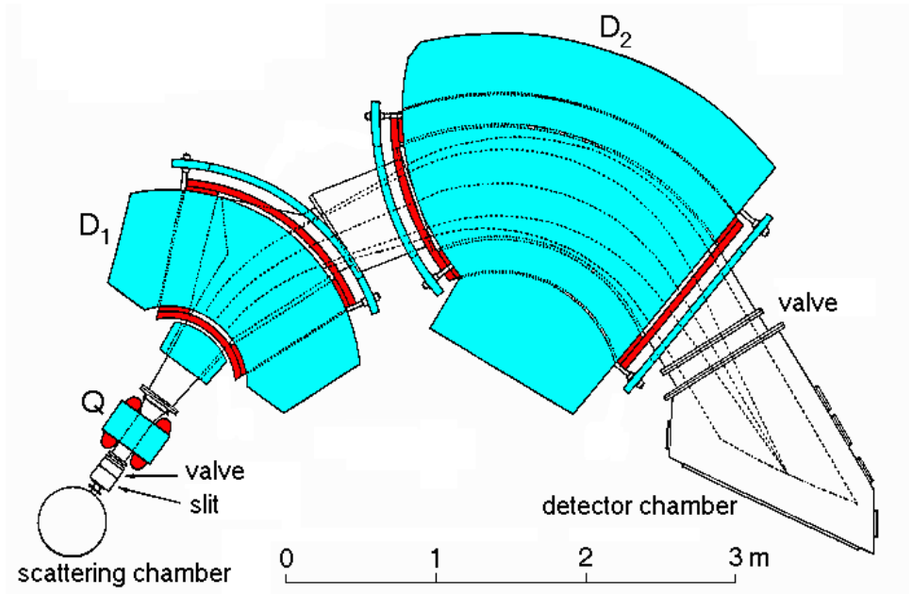
- QDD system (cf : spectrometer at INS)
-QQD system (Shinhyung)

[QDD spectrometer]



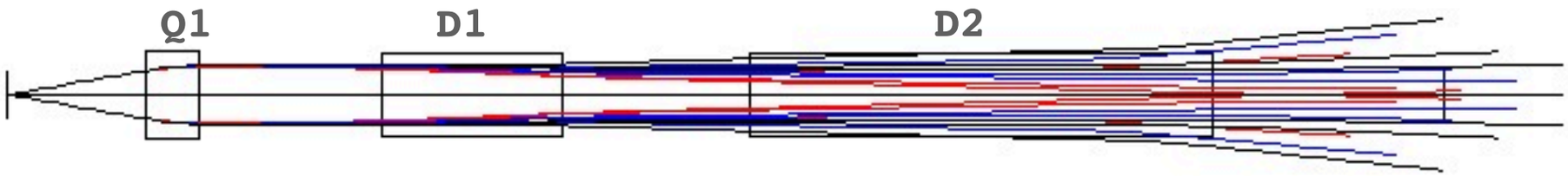


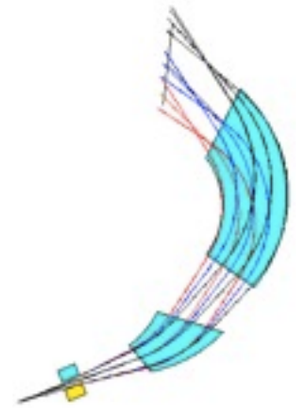
Spectrometer at INS SF cyclotron



分散(dispersion)	3.9 m
横倍率(horizontal magnification)	-0.4
縦倍率(vertical magnification)	-4.4
運動量分解能(first-order momentum resolution)	1/10000
最大立体角(maximum solid angle)	6.4 msr
軌道半径(orbit radius)	1.3 - 1.5 m
エネルギー帯域(energy range)	30 %
四極電磁石磁極間隙(pole gap of quadrupole magnet)	10.6 cm
双極電磁石磁極間隙(pole gap of dipole magnet)	10 cm
最大磁場(maximum field)	1.27 T
電磁石重量(magnet weight)	38 ton

[simulation for spectrometer at INS] : pole face curvature X

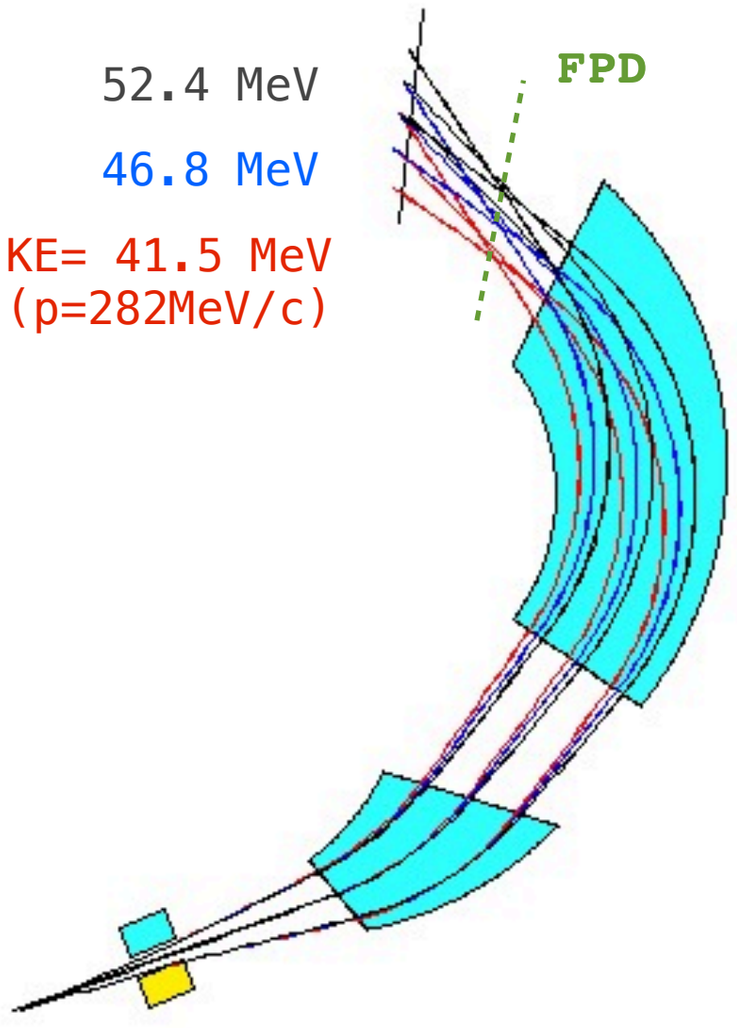




52.4 MeV

46.8 MeV

KE= 41.5 MeV
(p=282MeV/c)



* energy range: ±31%
(34.8-66.7 MeV)
* momentum range: ±16%
(258-360 MeV/c)

0.6m ->Q1-> 0.792m ->D1-> 0.811m ->D2-> 1m ->C

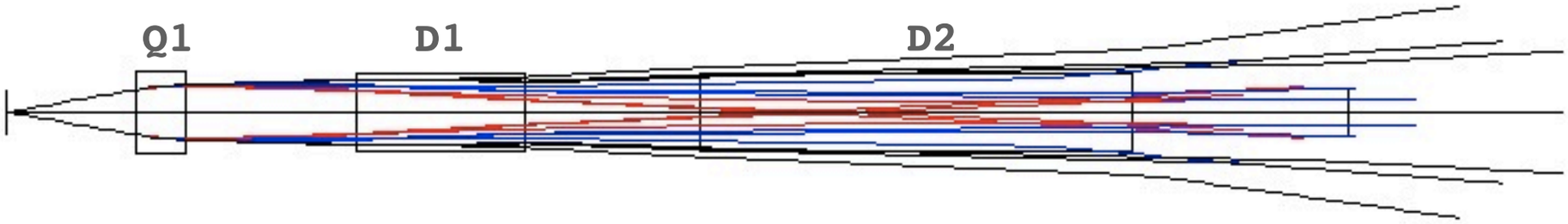
***Q1** : L=23cm, a=10.6cm, B=+5.3745T/m (y-focusing)

***D1** : θ=31.9°, gap=10cm, w1=40cm, w2=80cm,
R=1.401m, B = -0.72T, β_1=0, β_2=21°

***D2** : θ=81.8°, gap=10cm, w1=72cm, w2=90cm,
R=1.401m, B = -0.72T, β_1=3.7°, β_2=21°

Q1		0.60	0.23	0.106	0.40	5.3745			
D1		0.792	31.90	0.10	0.40	0.80	1.401	-0.72	0.00	21.00
D2		0.811	81.80	0.10	0.72	0.90	1.401	-0.720	3.70	20.00
C		1.00	40.00	1.00	0.00					

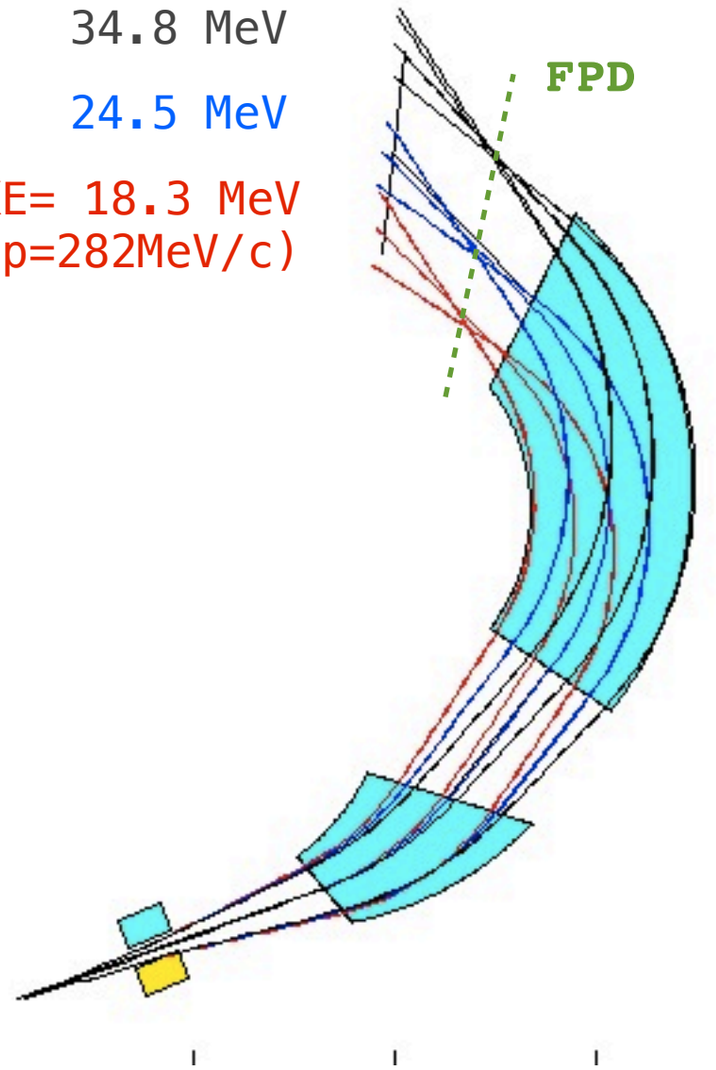
[QDD system (adjust momentum range from INS)]



34.8 MeV

24.5 MeV

KE= 18.3 MeV
(p=282MeV/c)



* energy range: ±31%
  (18.3-34.8 MeV)
* momentum range: ±16%
  (186-258 MeV/c)

0.6m ->Q1-> 0.792m ->D1-> 0.811m ->D2-> 1m ->C

***Q1** : L=23cm, a=10.6cm, B=+3.8696T/m (y-focusing)

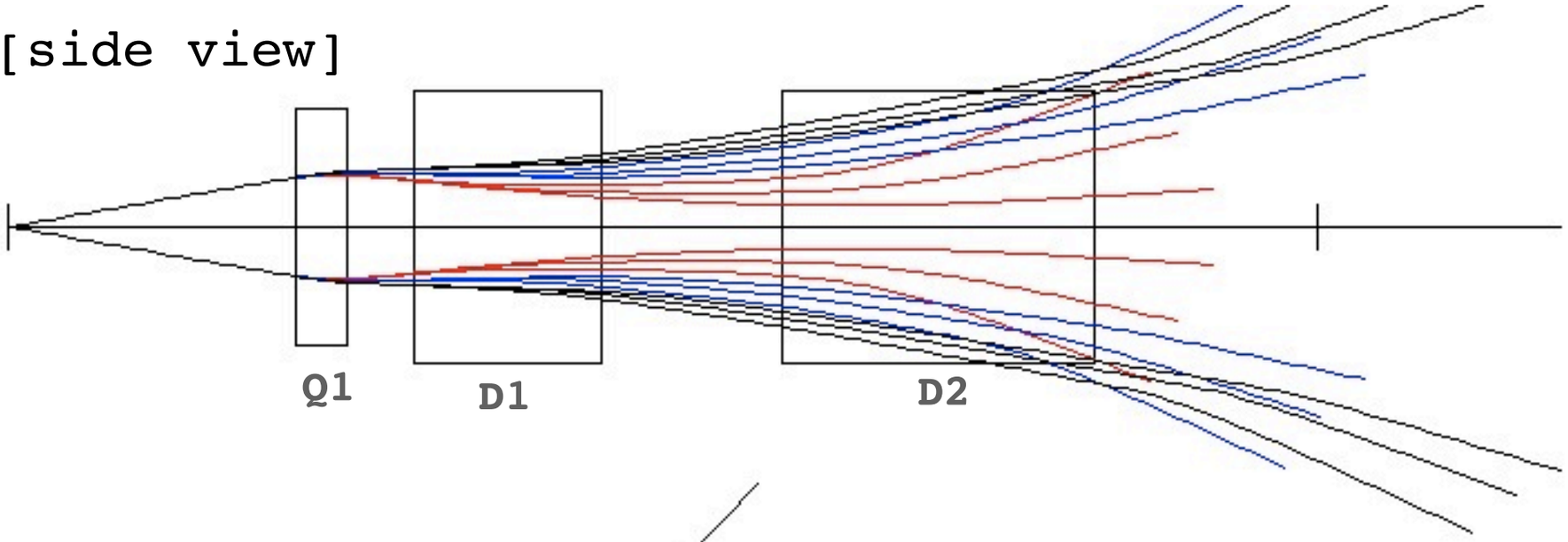
***D1** : θ=31.9°, gap=10cm, w1=40cm, w2=80cm,
R=1.401m, B = -0.52T, β_1=0, β_2=21°

***D2** : θ=81.8°, gap=10cm, w1=72cm, w2=90cm,
R=1.401m, B = -0.52T, β_1=3.7°, β_2=21°

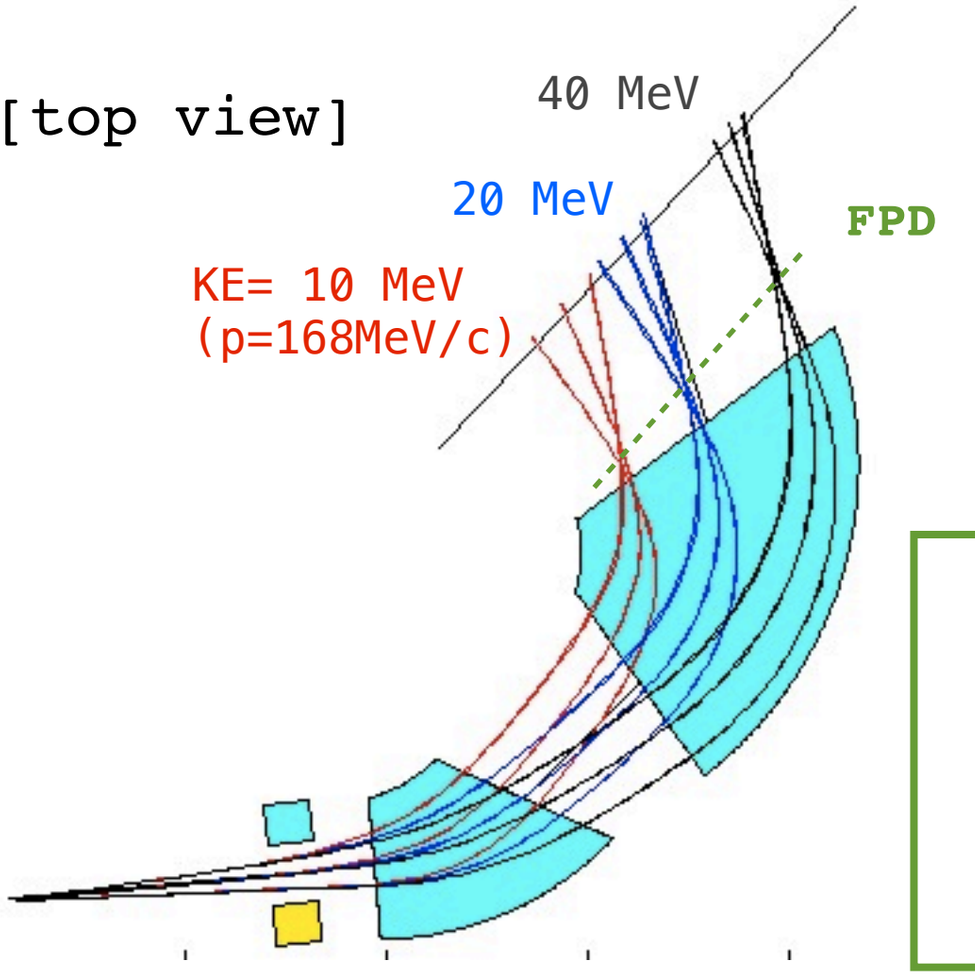
Q1		0.60	0.23	0.106	0.40	3.8696			
D1		0.792	31.90	0.10	0.40	0.80	1.401	-0.52	0.00	21.00
D2		0.811	81.80	0.10	0.72	0.90	1.401	-0.520	3.70	20.00
C		1.00	40.00	1.00	0.00					

[QDD system]

[side view]



[top view]



* energy range: ±60%
  (18.3-34.8 MeV)
* momentum range: ±34%
  (186-258 MeV/c)
* 9.9 msr

1.3m ->Q1-> 0.292m ->D1-> 0.811m ->D2-> 1m ->C

***Q1** : L=23cm, a=30cm, B=+1.5T/m (y-focusing)

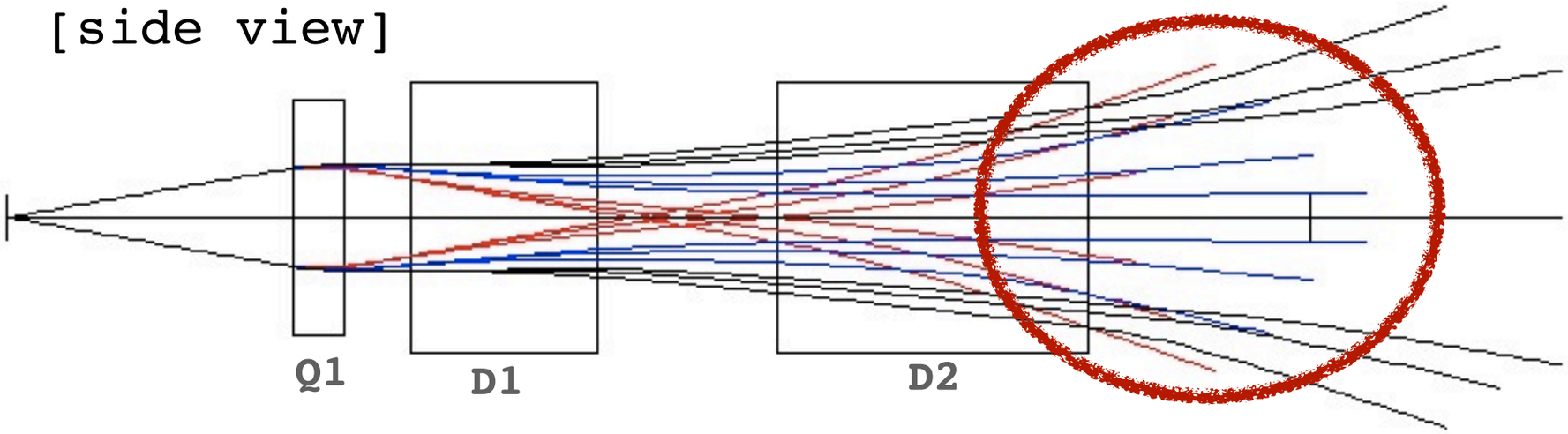
***D1** : θ=40.0°, gap=35cm, w1=70cm, w2=90cm,
R=1.20m, B = -0.47T, β_1=0, β_2=21°

***D2** : θ=61.8°, gap=35cm, w1=1.1m, w2=1.5m,
R=1.30m, B = -0.57T, β_1=-10°, β_2=21°

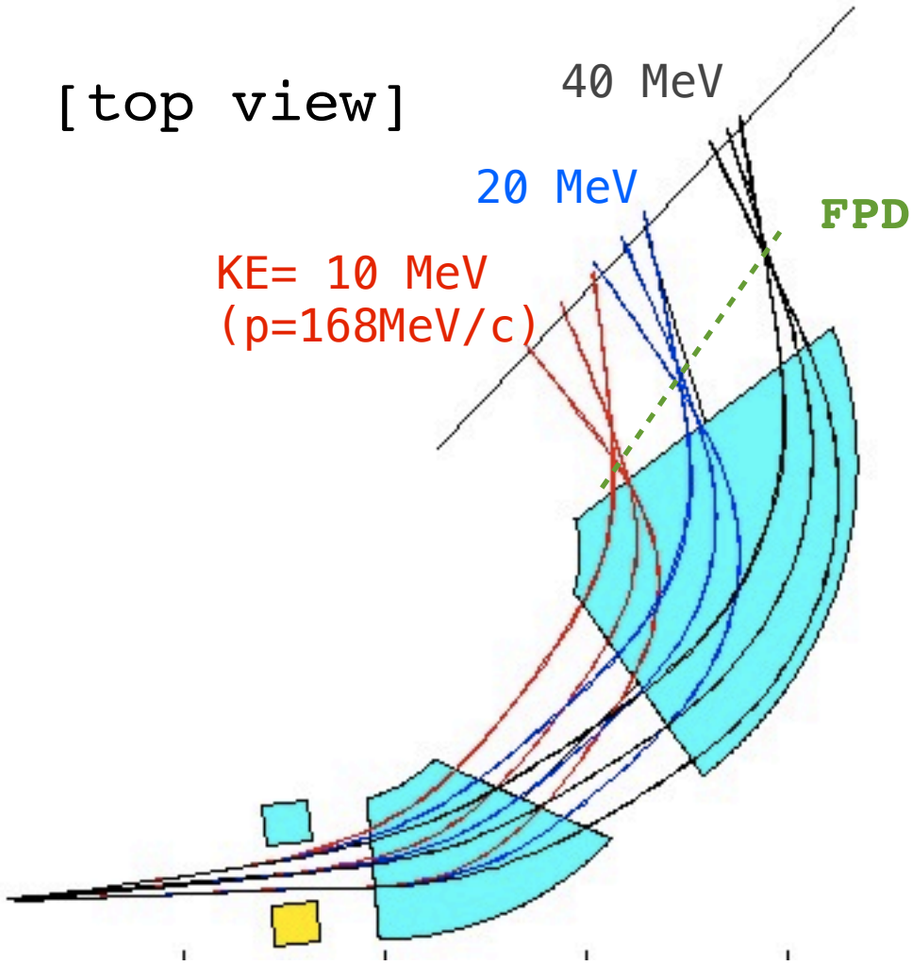
Q1	1.30	0.23	0.30	0.70	1.50				
D1	0.292	40.00	0.35	0.70	0.90	1.20	-0.47	0.00	21.00
D2	0.811	61.80	0.35	1.10	1.50	1.30	-0.57	-10.0	20.00
C	1.00	40.00	3.00	0.00					

[QDD system (vertical acceptance)]

[side view]



[top view]



1.3m ->Q1-> 0.292m ->D1-> 0.811m ->D2-> 1m ->C

***Q1** : L=23cm, a=30cm, B=+2.0T/m (y-focusing)

***D1** : θ=40.0°, gap=35cm, w1=70cm, w2=90cm,
R=1.20m, B = -0.47T, β_1=0, β_2=21°

***D2** : θ=61.8°, gap=35cm, w1=1.1m, w2=1.5m,
R=1.30m, B = -0.57T, β_1=-10°, β_2=21°

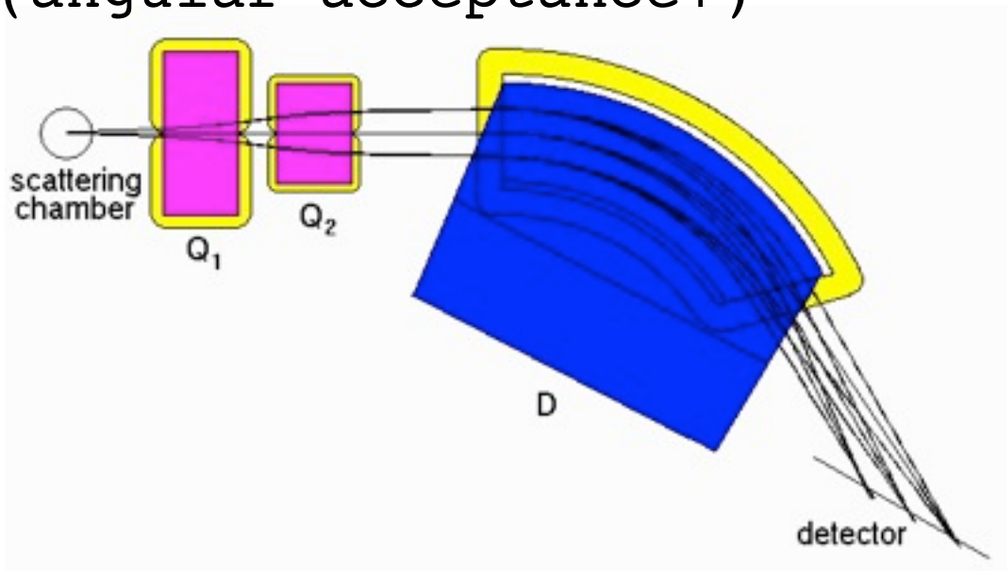
Q1	1.30	0.23	0.30	0.70	2.00				
D1	0.292	40.00	0.35	0.70	0.90	1.20	-0.47	0.00	21.00
D2	0.811	61.80	0.35	1.10	1.50	1.30	-0.57	-10.0	20.00
C	1.00	30.00	3.00	0.00					

[QQD system (Shinhyung)]

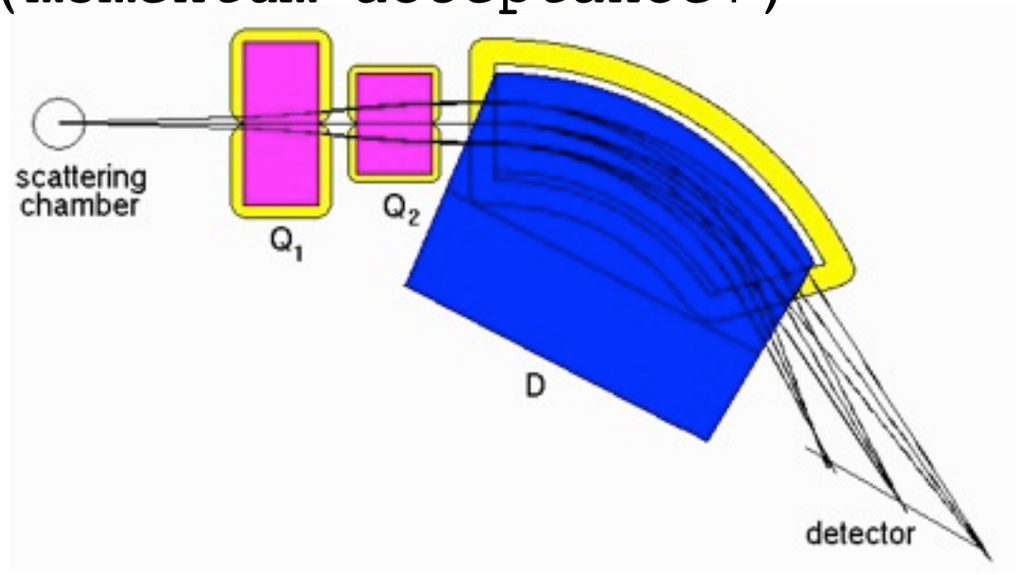
Big-Bite Spectrometer at KVI,
University of Groningen,
The Netherlands

モード(mode)	大立体角 large solid angle	広帯域 broad range
最大立体角(maximum solid angle)	14 msr	7 msr
エネルギー帯域(energy range)	13 %	50 %
分散(dispersion)	2.6 m	2.6 m
横倍率(horizontal magnification)	-0.48	-0.45
縦倍率(vertical magnification)	-11.0	-5.7
運動量分解能(momentum resolution)	1/2500	1/2500
軌道半径(orbit radius)	2.2 m	2.2 m
最大磁場(maximum field)	1.4 T	1.4 T

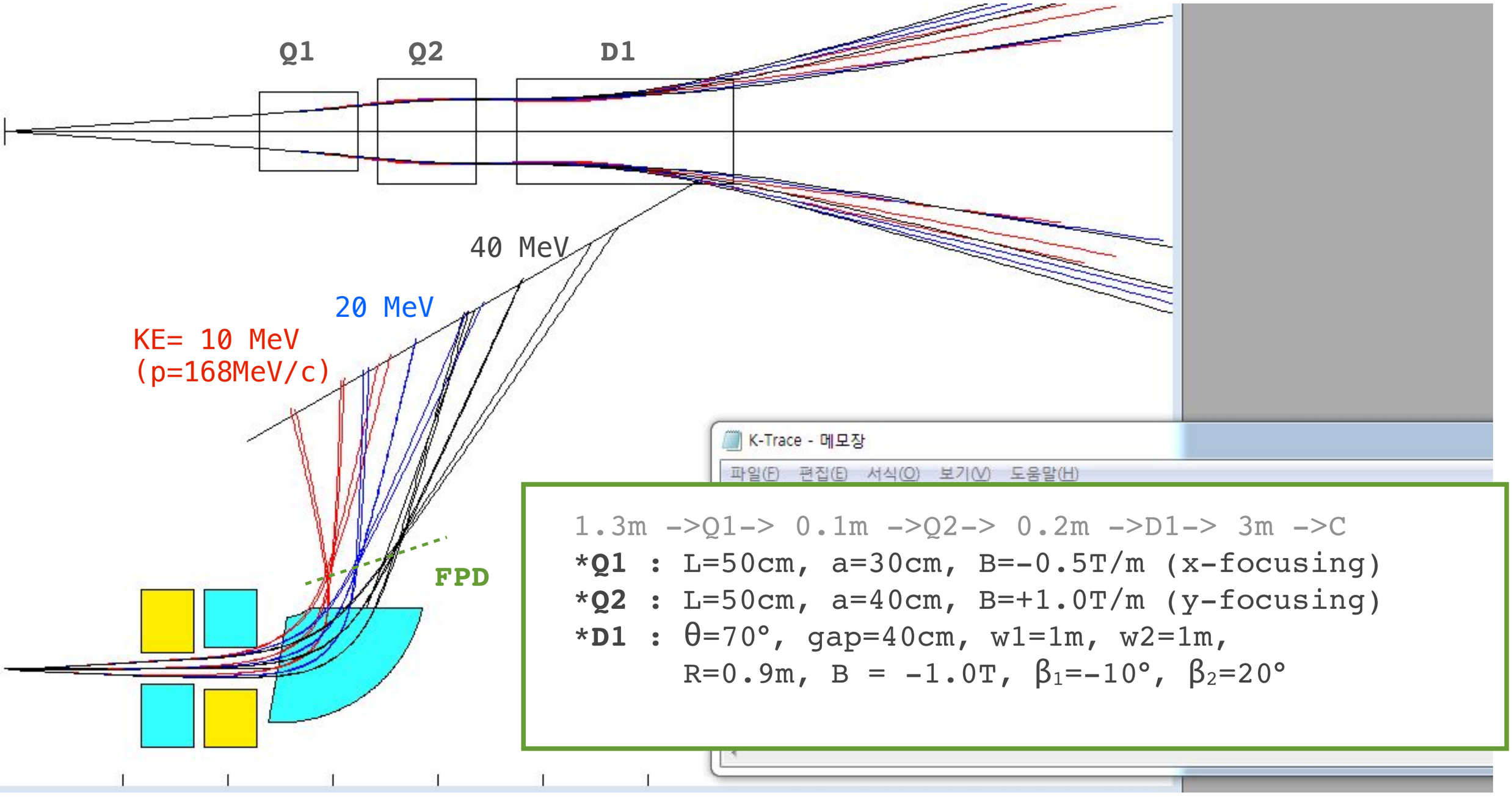
[large solid angle mode]
(angular acceptance↑)



[broad range mode]
(momentum acceptance↑)



[QQD system (focal plane)]



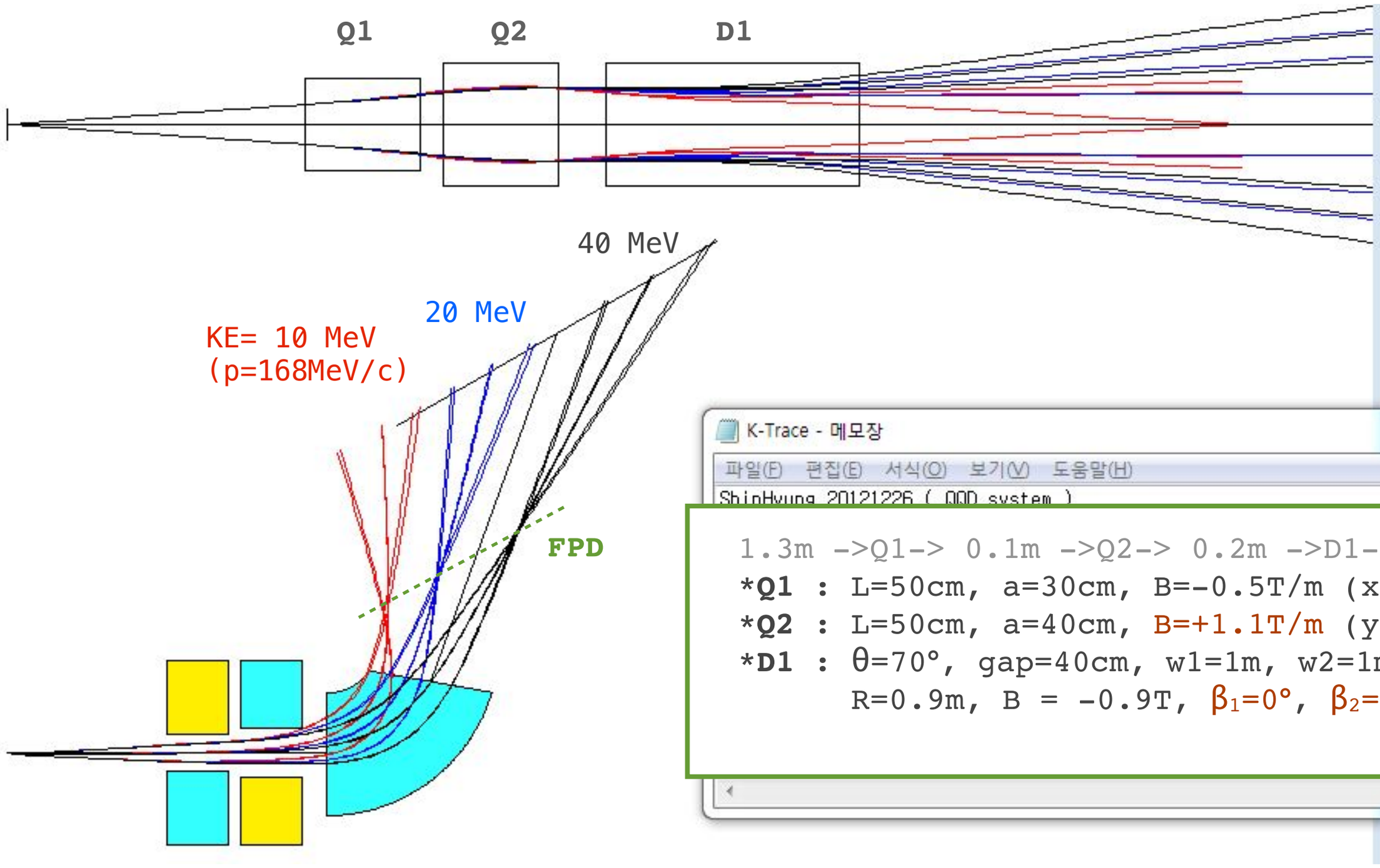
1.3m ->Q1-> 0.1m ->Q2-> 0.2m ->D1-> 3m ->C

***Q1** : L=50cm, a=30cm, B=-0.5T/m (x-focusing)

***Q2** : L=50cm, a=40cm, B=+1.0T/m (y-focusing)

***D1** : θ=70°, gap=40cm, w1=1m, w2=1m,
R=0.9m, B = -1.0T, β_1=-10°, β_2=20°

[QQD system (vertical acceptance)]



K-Trace - 메모장

파일(F) 편집(E) 서식(O) 보기(V) 도움말(H)

ShinHyung 20121226 (QQD system)

1.3m ->Q1-> 0.1m ->Q2-> 0.2m ->D1-> 3m ->C

***Q1** : L=50cm, a=30cm, B=-0.5T/m (x-focusing)

***Q2** : L=50cm, a=40cm, B=+1.1T/m (y-focusing)

***D1** : θ=70°, gap=40cm, w1=1m, w2=1m,
R=0.9m, B = -0.9T, β_1=0°, β_2=10°

[Future plans]

- QDD : easy to make tilted-angle of FPD smaller
  : higher momentum resolution
  (compared to QQD)

- There are too many parameters (R,θ,β,a,L...) to check step by step as before
  => 윤종철박사님 said he would first determine proper values approximately. => waiting..

- GICOSY simulation => studying now..