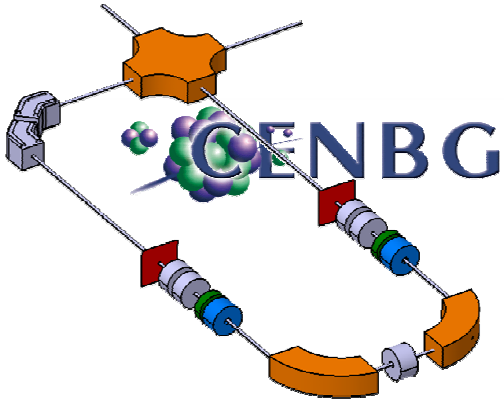
IN2P3
Institut national de physique nucléaire
et de physique des particules

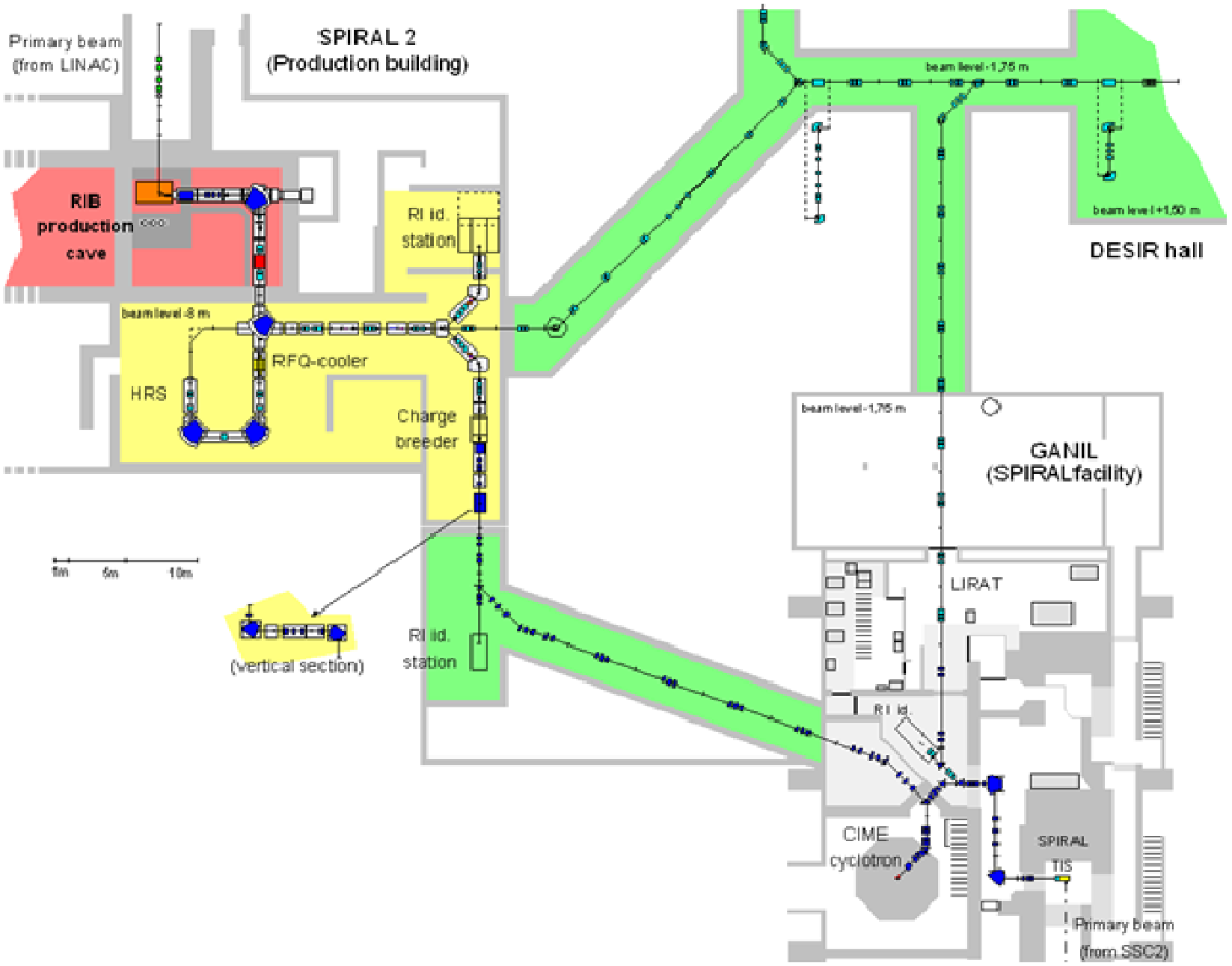


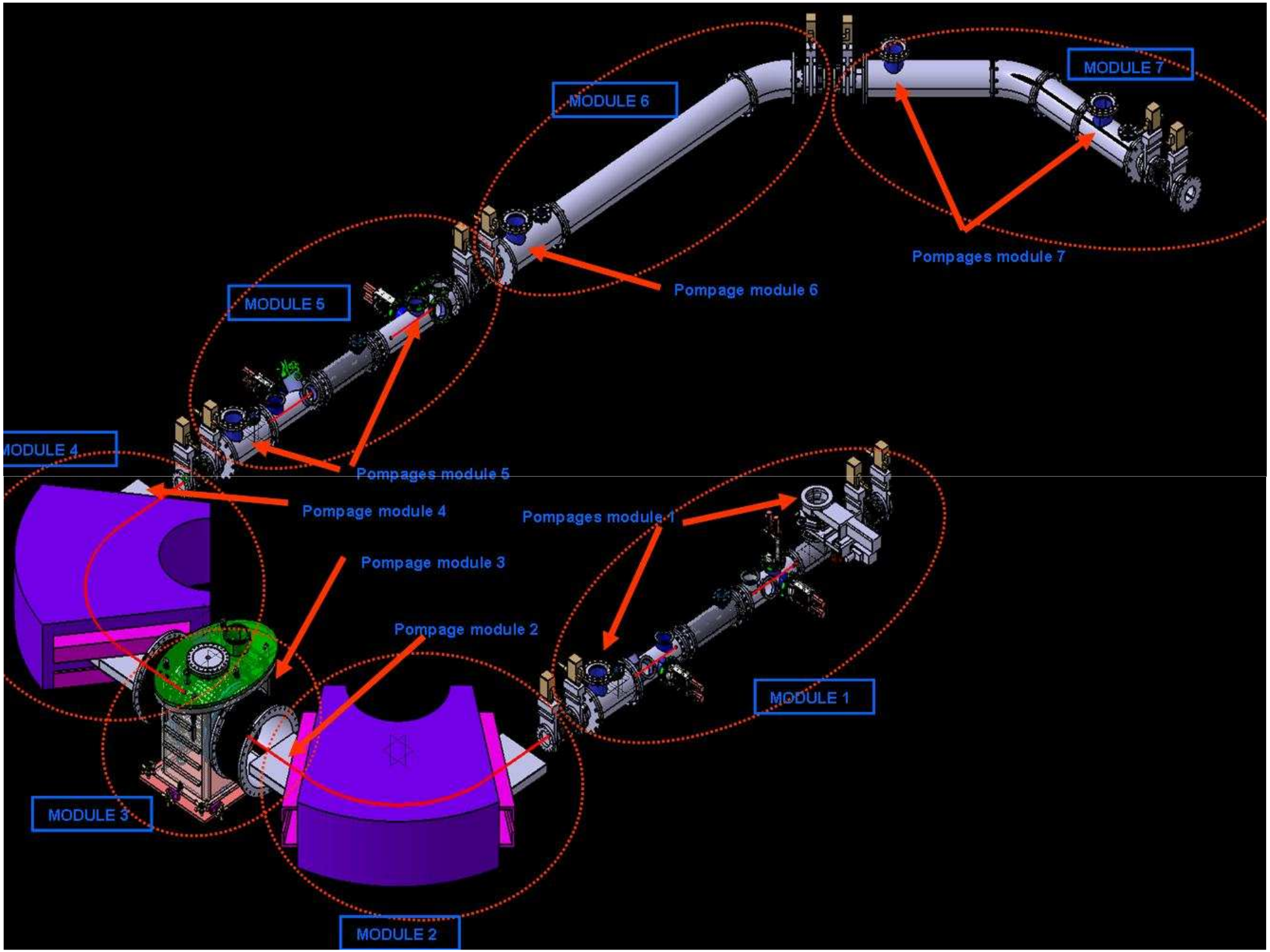
High Resolution Separator HRS

Teresa Kurtukian-Nieto

CEN Bordeaux-Gradignan

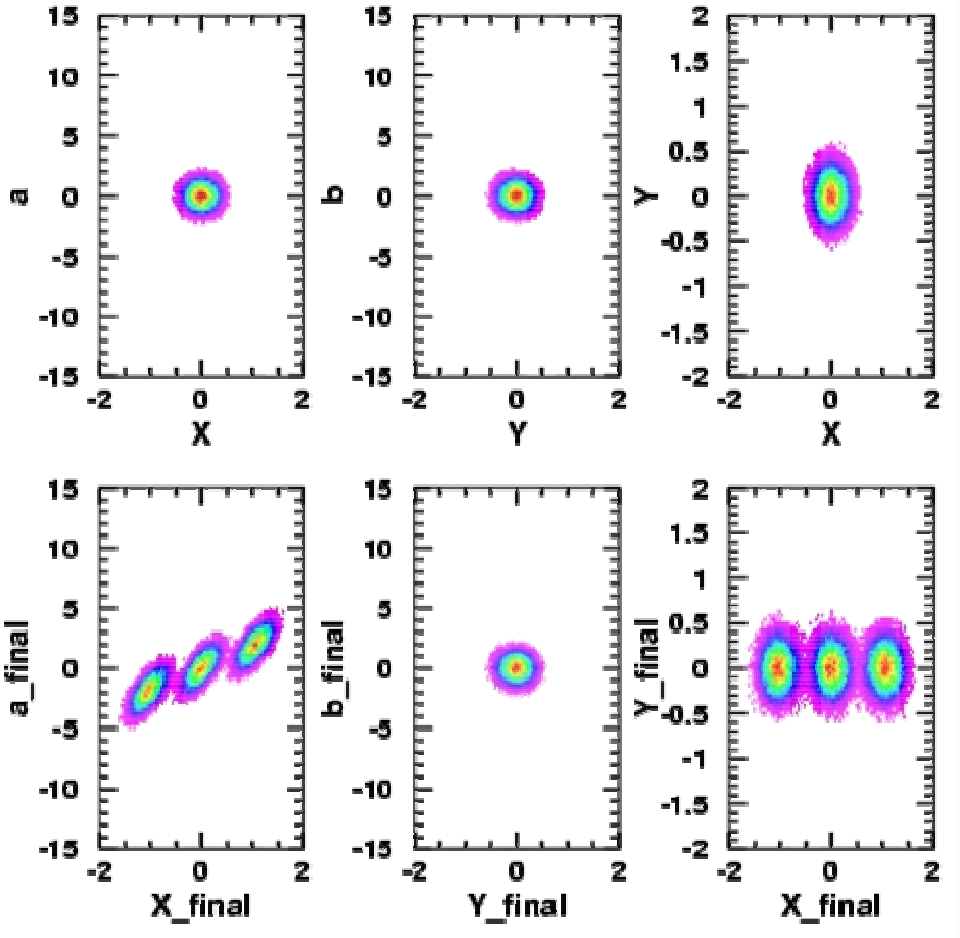
HRS-DESIR @ production building

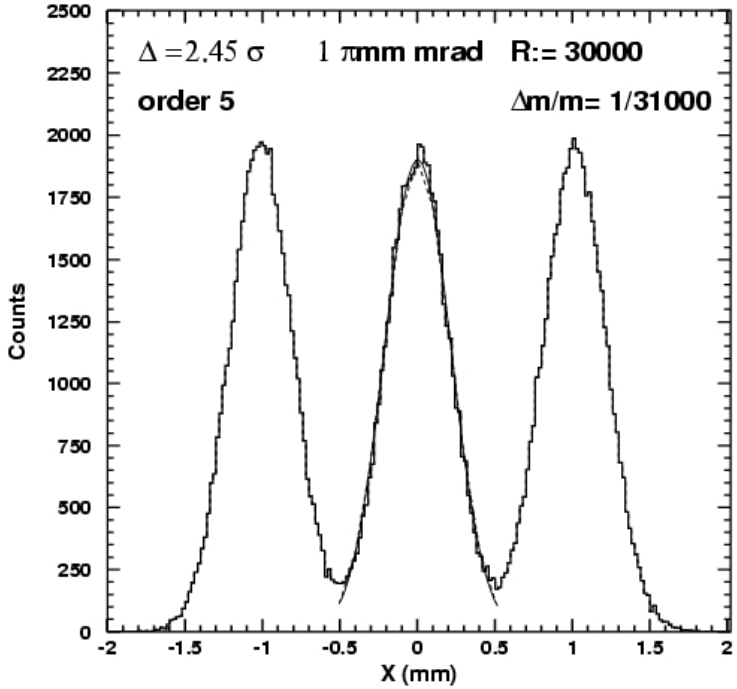



MODULE 7
MODULE 6
Pompages module 7
Pompage module 6
MODULE 5
ODULE 4
Pompages module 5
Pompage module 4
Pompages module 1
Pompage module 3
Pompage module 2
MODULE 1
MODULE 3
MODULE 2

Monte-Carlo Simulations

Mass spectra calculated, for 3 isobares with mass deviations -1/31000, 0, +1/31000



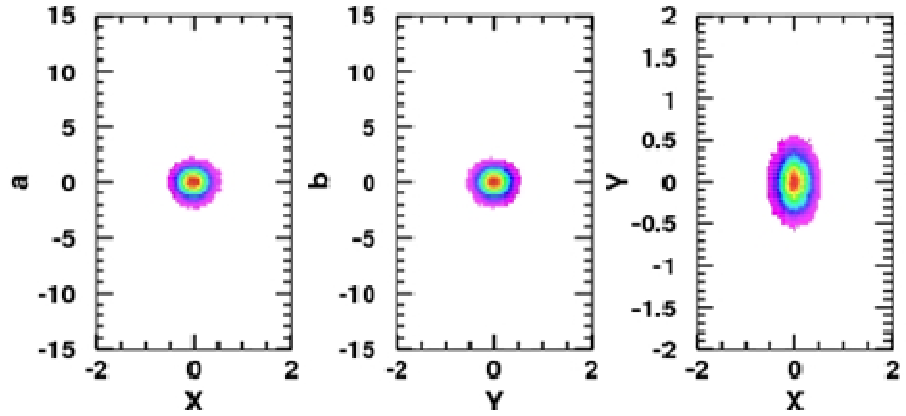


calculated to 5th order

The mass separation is 1:30000

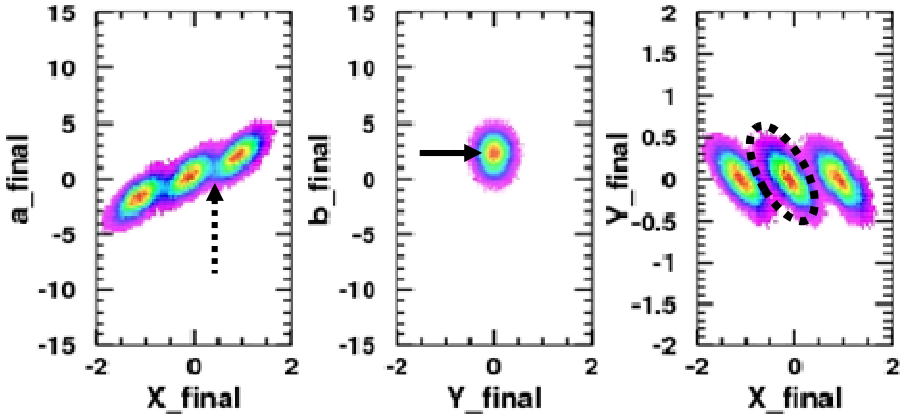
Misalignment effects on mass resolution

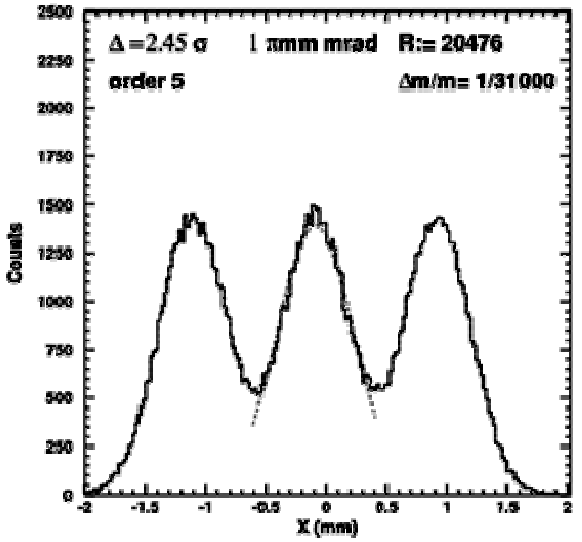
Beam at the entrace of the HRS



Module	ΔX (mm)	ΔY (mm)	Δθ (°)
1	-0.1	-0.1	-0.2
2	-0.1	-0.1	-0.2
3	-0.05	-0.05	-0.2
4	-0.1	-0.1	-0.2
5	-0.1	-0.1	-0.2
X-Offset (mm)	-0.09		
R	20477		

Beam at the exit od the HRS





Status of the project

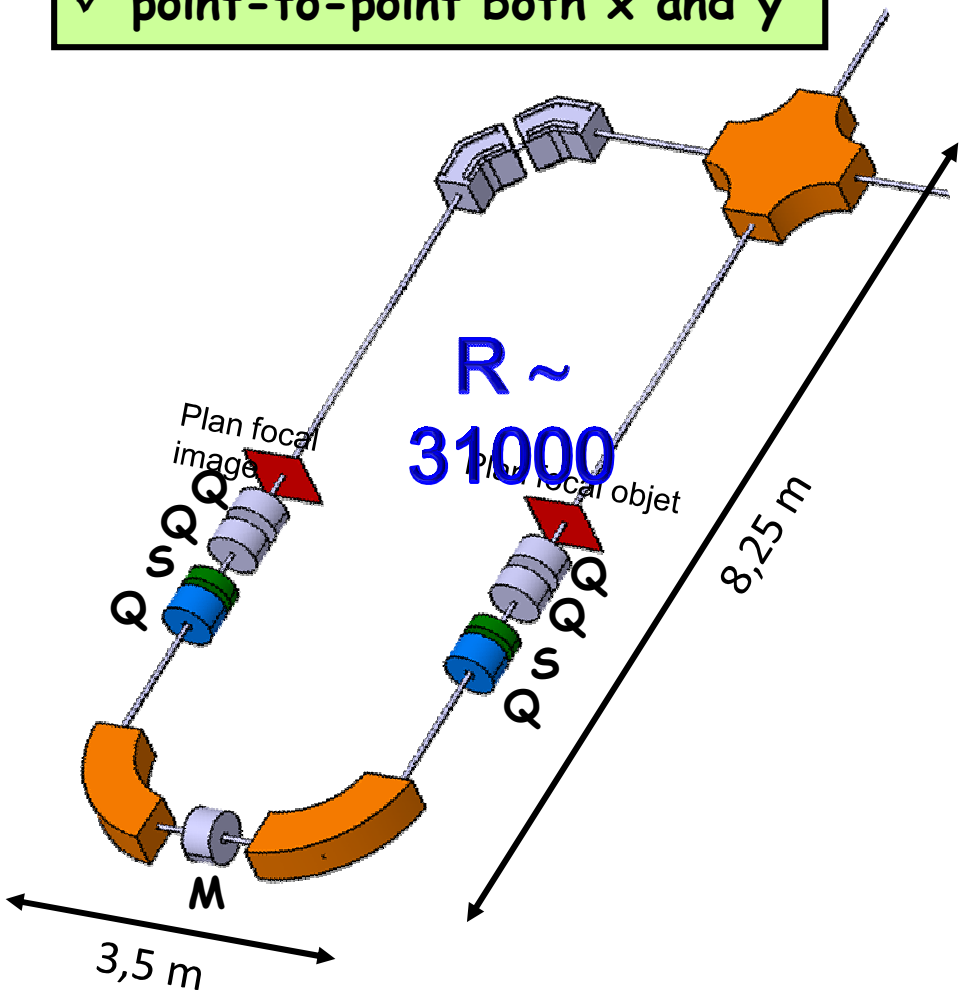
- **Global optical design finished: 2nd DESIR-HRS Workshop at Bordeaux November 17-18, 2011**
- **Mechanical design and integration done presently**
  - **Integrate 1+Line matching section**
- **Assembly Hall at CENBG**
- **End of 2011: « cahier de charge » for dipole magnets**
- **Ordering of dipoles 2012 ➔ 400 k€ CPER Basse Normandie**
- **Manufacturing of other elements at CENBG**
- **Installation at CENBG during 2013**
- **Tests (transmission, resolution) 2014**
- **Transfer to GANIL 2015**

HRS “U180”

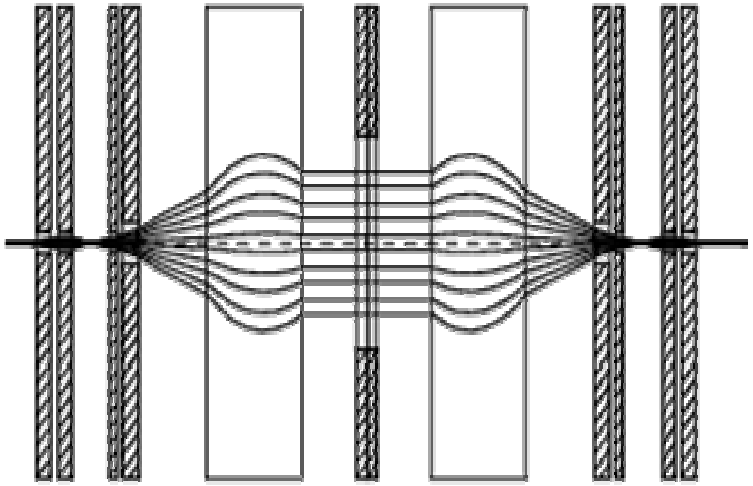
✓ (x|δ) = -31.5 cm/%

✓ Mirror symmetric

✓ point-to-point both x and y



Module 8333: HRS U-180



Transfer matrix

	(x,)	(a,)	(y,)	(b,)
x	**-1.0**	-4.5	0.0	0.0
a	0.3E-7	**-1.0**	0.0	0.0
y	0.0	0.0	**1.0**	23.2
b	0.0	0.0	-0.2E-7	**1.0**
δ m	**-31.5**	-70.9	0.0	0.0

Assembly Hall @ CENBG

~300 m² 350 k€