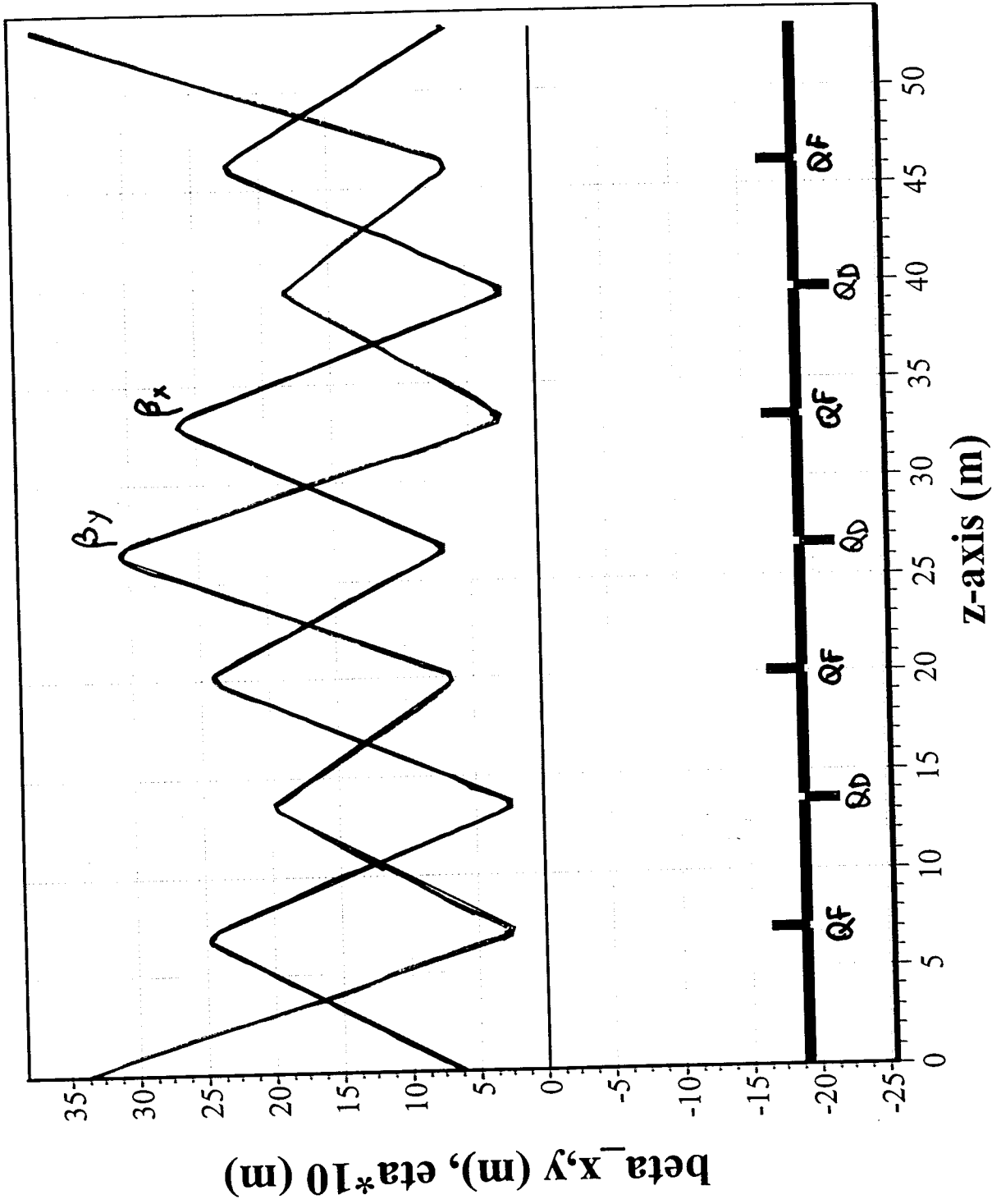


# LER - VLER LATTICES

J. SEEMAN - M. BIAGINI

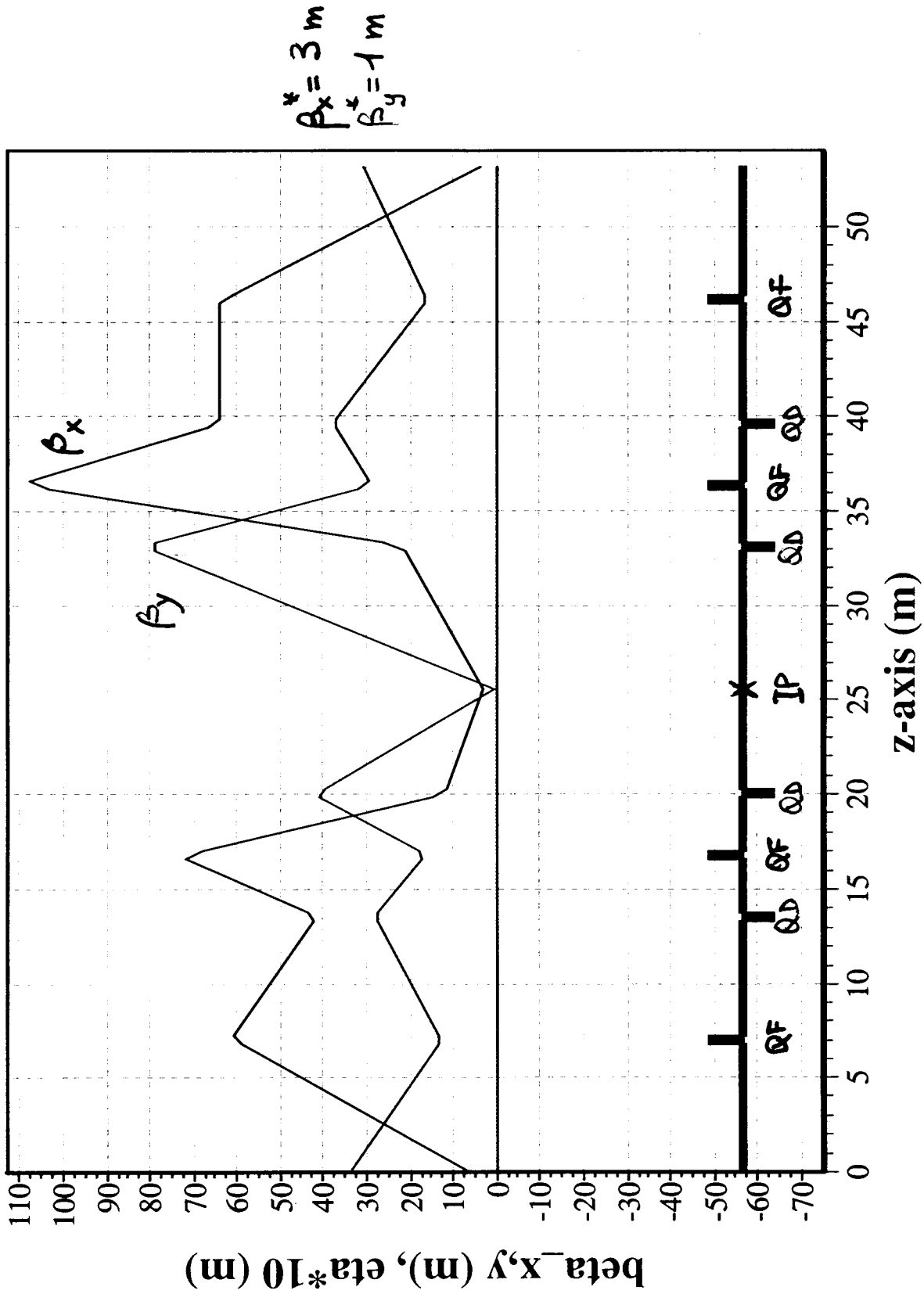
- LER ( $e^+$ ) modifications :
  - low  $\beta_{x,y}^*$  (3 m / 1 m)
  - asymmetric IP
  - quads modif.
  - "small" perturbation
  
- VLER ( $e^-$ ) :
  - compact ring :  $C \approx 45$  m
  - hall : 20 x 7 m
  - special IR
  - small emittance
  - low  $\beta_{x,y}^*$  (.3 / .03 m)
  - round beams

# LER Betatron Functions



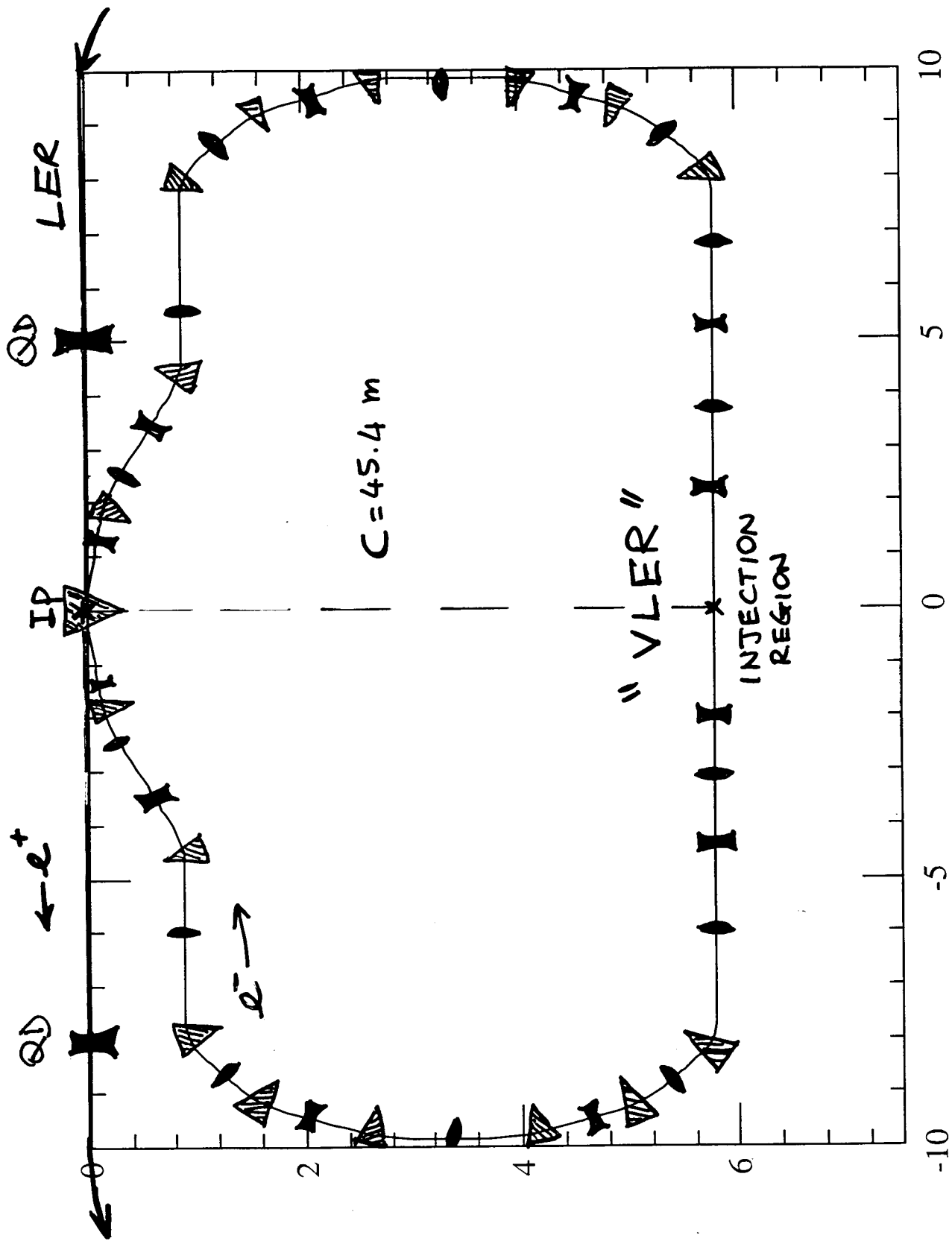
RED:  $\beta_x$ ; GREEN:  $\beta_y$ ; BLUE: dispersion\*10

# LER MODIFIED Betatron Functions

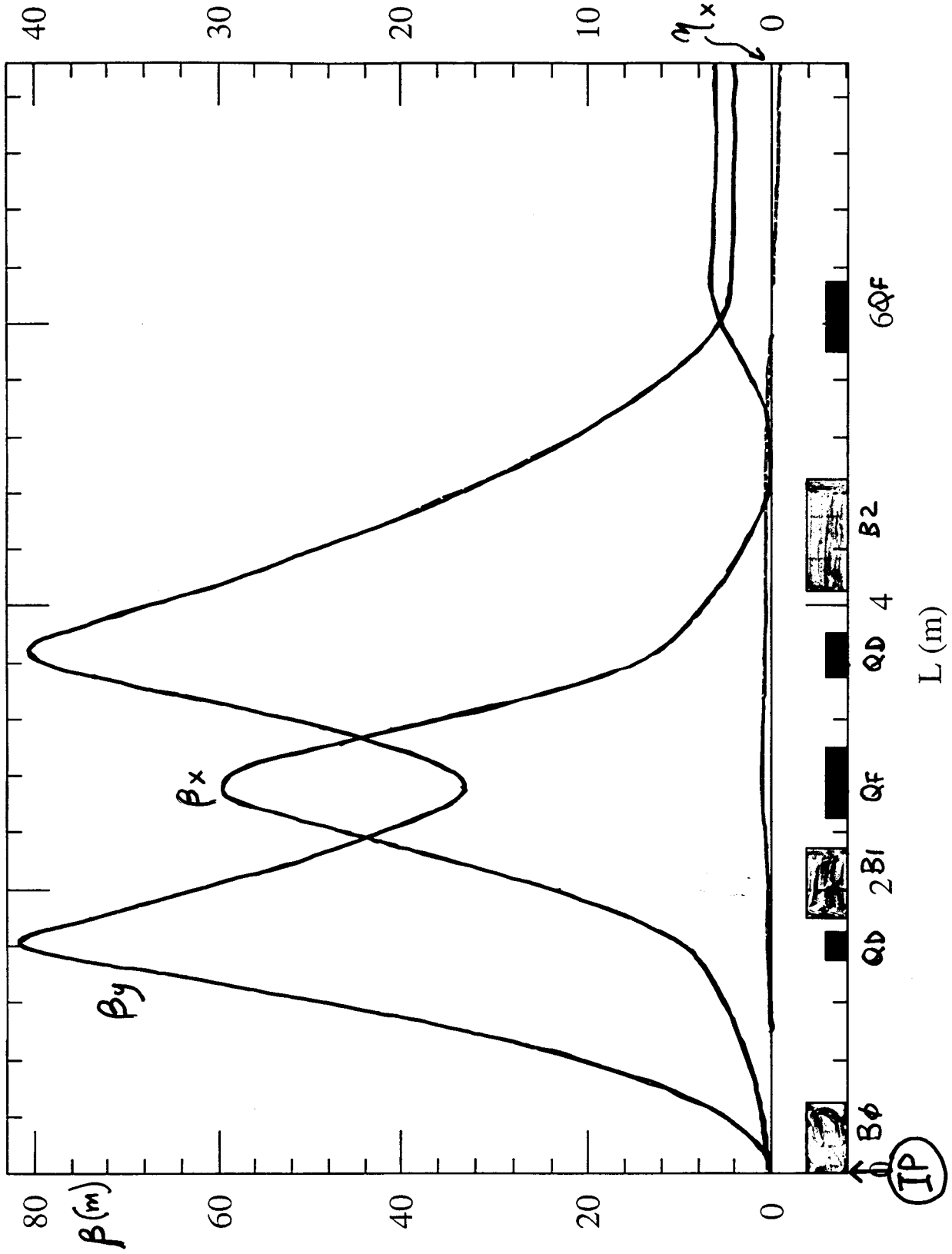


RED: beta\_x; GREEN: beta\_y; BLUE: dispersion\*10

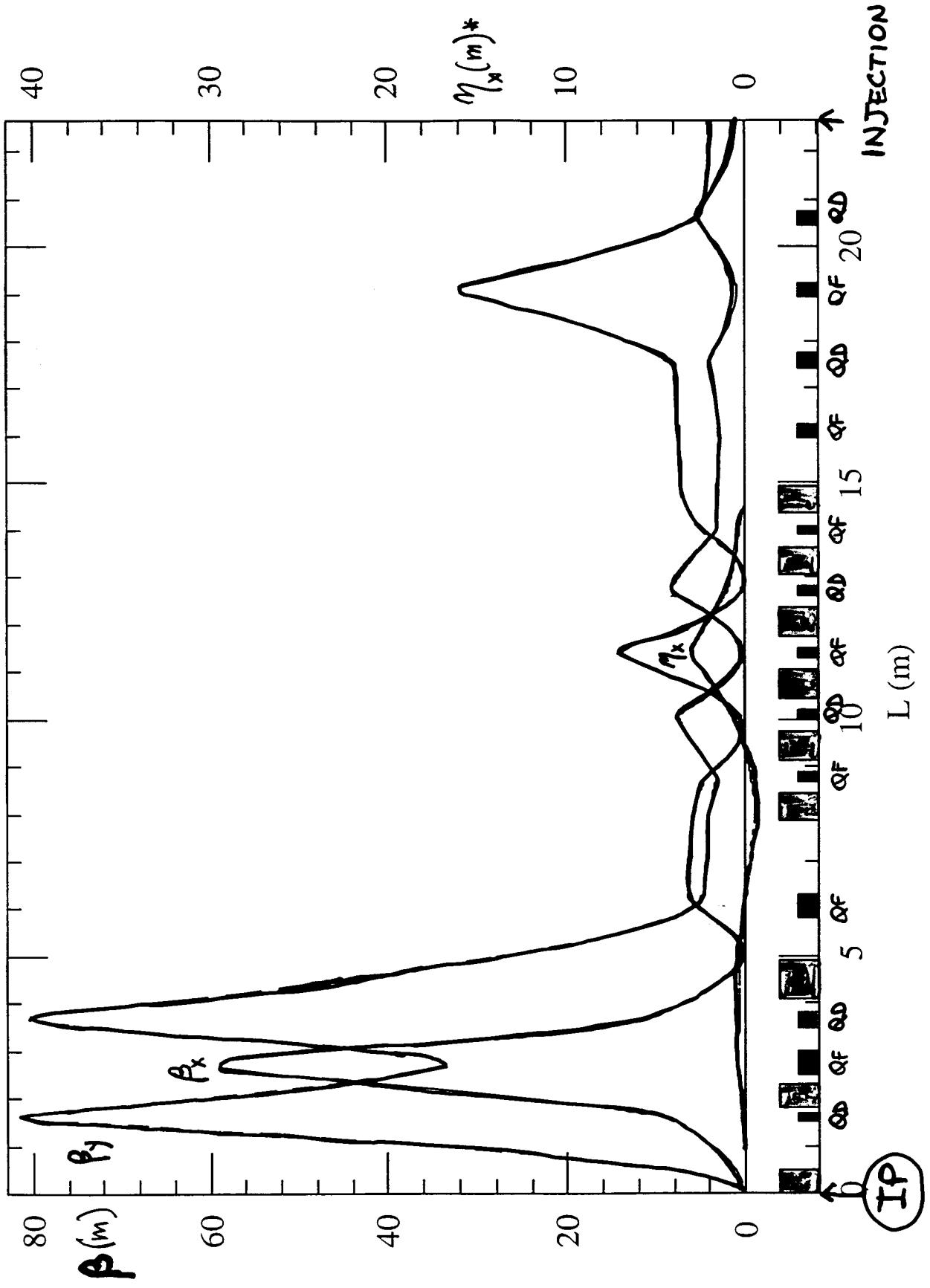




# HALF INTERACTION REGION



# HALF RING



## RING PARAMETERS

<b>E (MeV)<sup>MAX</sup></b>	500.	<b>C (m)</b>	45.347
<b><math>\beta_x^*</math> (m)</b>	0.3	<b><math>\beta_y^*</math> (m)</b>	0.03
<b><math>\sigma_x^*</math> (mm)</b>	0.2	<b><math>\sigma_y^*</math> (mm)</b>	0.07
<b><math>\eta_x^*</math> (m)</b>	0.	<b>IP <math>\beta_y^*/\beta_x^*</math></b>	10.
<b>IR Max <math>\beta_x</math> (m)</b>	50.	<b>IR Max <math>\beta_y</math> (m)</b>	80.
<b>Max <math>\beta_x</math> (m)</b>	30.	<b>Max <math>\beta_y</math> (m)</b>	10.
<b>Max <math>\eta_x</math> (m)</b>	3.0	<b><math>\sigma_z</math> (cm)</b>	1.5 @150 kV
<b><math>v_x</math></b>	3.7	<b><math>v_y</math></b>	3.1
<b>x-Chromaticity</b>	-12.	<b>y-Chromaticity</b>	-17
<b><math>\epsilon_x</math> (m rad)</b>	$180. \times 10^{-09}$	<b><math>\epsilon_y</math> (m rad)</b>	$180. \times 10^{-09}$
<b><math>\alpha_c</math></b>	.095	<b><math>U_0</math> (KeV/turn)</b>	5.
<b><math>\sigma_E/E</math></b>	$3.9 \times 10^{-04}$	<b>h</b>	72
<b><math>\tau_x</math> (ms)</b>	28.	<b><math>f_{rev}</math> (MHz)</b>	6.62

FULL  
COUPLING



## SUMMARY OF MAGNETS

	Tot #	Length (m)	B (T)	Max B' (T/m)
IR1 Dipoles	5	1./0.5/0.8	0.3/0.7/0.63	-
IR1 Quads	8	0.2/0.3/0.5	-	9.
IR2 Quads	8	0.3	-	5.
ARC Dipoles	12	0.6	1.5	-
ARC Quads	10	0.2	-	10.

### HALF IR1

	Length (m)	$\theta$ ( $^{\circ}$ )	B (T)	B' (T/m)
B0	0.5	5.16	0.3	-
QD	0.2	-	-	9.
B1	0.5	12.	0.7	-
QF	0.5	-	-	5.
QD	0.3	-	-	5.
B2	0.8	-17.16	0.63	-
QF	0.5	-	-	4.

### ARC

	Length (m)	$\theta$ ( $^{\circ}$ )	B (T)	B' (T/m)
B	0.6	30.	1.5	0.63
QF	0.2	-	-	6.
B	0.6	30.	1.5	0.63
QD	0.2	-	-	7.5
B	0.6	30.	1.5	0.63
QF	0.2	-	-	10.
B	0.6	30.	1.5	0.63
QD	0.2	-	-	7.5
B	0.6	30.	1.5	0.63
QF	0.2	-	-	5.5
B	0.6	30.	1.5	0.63