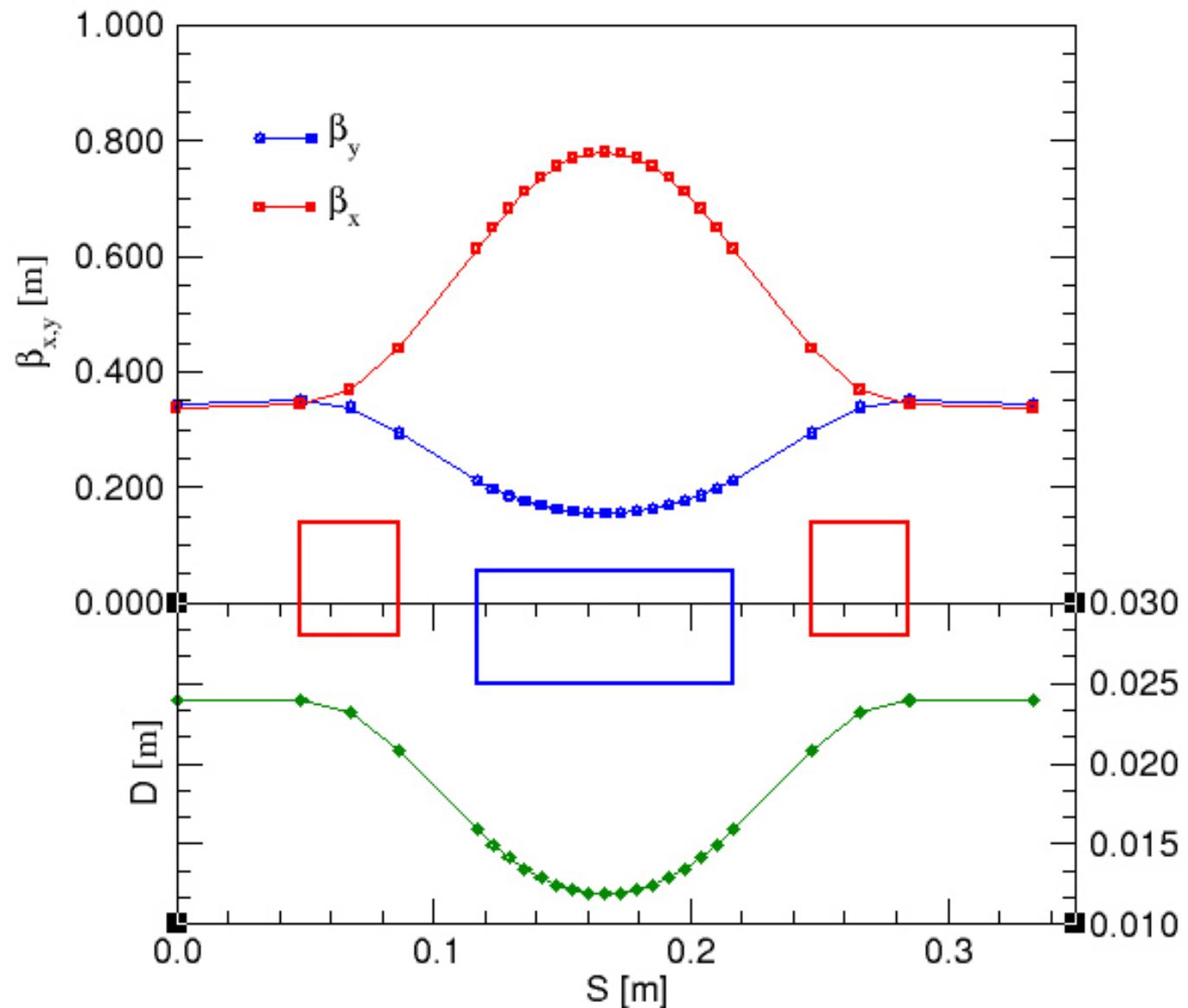


# Examples of Non-Scaling Electron Demonstration FFAG: E. D. Courant and D. Trbojevic

- Lattice Properties:
  - Dimensions and lattice functions for the central energy  $E_0 = 15 \text{ MeV}$ :
    - Circumference C and number of periods N:
      - $C = 13 \text{ m}$  with  $N = 32$ ,
      - $C = 13 \text{ m}$  with  $N = 34$ ,
      - $C = 16 \text{ m}$  with  $N = 45$ ,
      - $C = 17 \text{ m}$  with  $N = 45$ .
    - Gradients and bending fields/angles.
    - Momentum Dependence:
      - Path length per unit cell and for a total length vs. momentum.
      - Orbit offsets vs. momentum.
      - tunes vs. momentum.
      - Amplitude and dispersion functions vs. momentum.

# Electron Demonstration Ring C=15m N=45



## Dimensions and Fields:

GRADIENTS: GF = 7.06035 T/m  
GD = -4.59590 T/m

### Dimensions:

L<sub>BD</sub> = 10 cm  
L<sub>QF</sub> = 3.8 cm  
CAV = 10.6 cm  
Drift = 3.12 cm

### Bending Fields:

By<sub>QD</sub> = 0.1093 T  
By<sub>QF</sub> = -0.0520 T

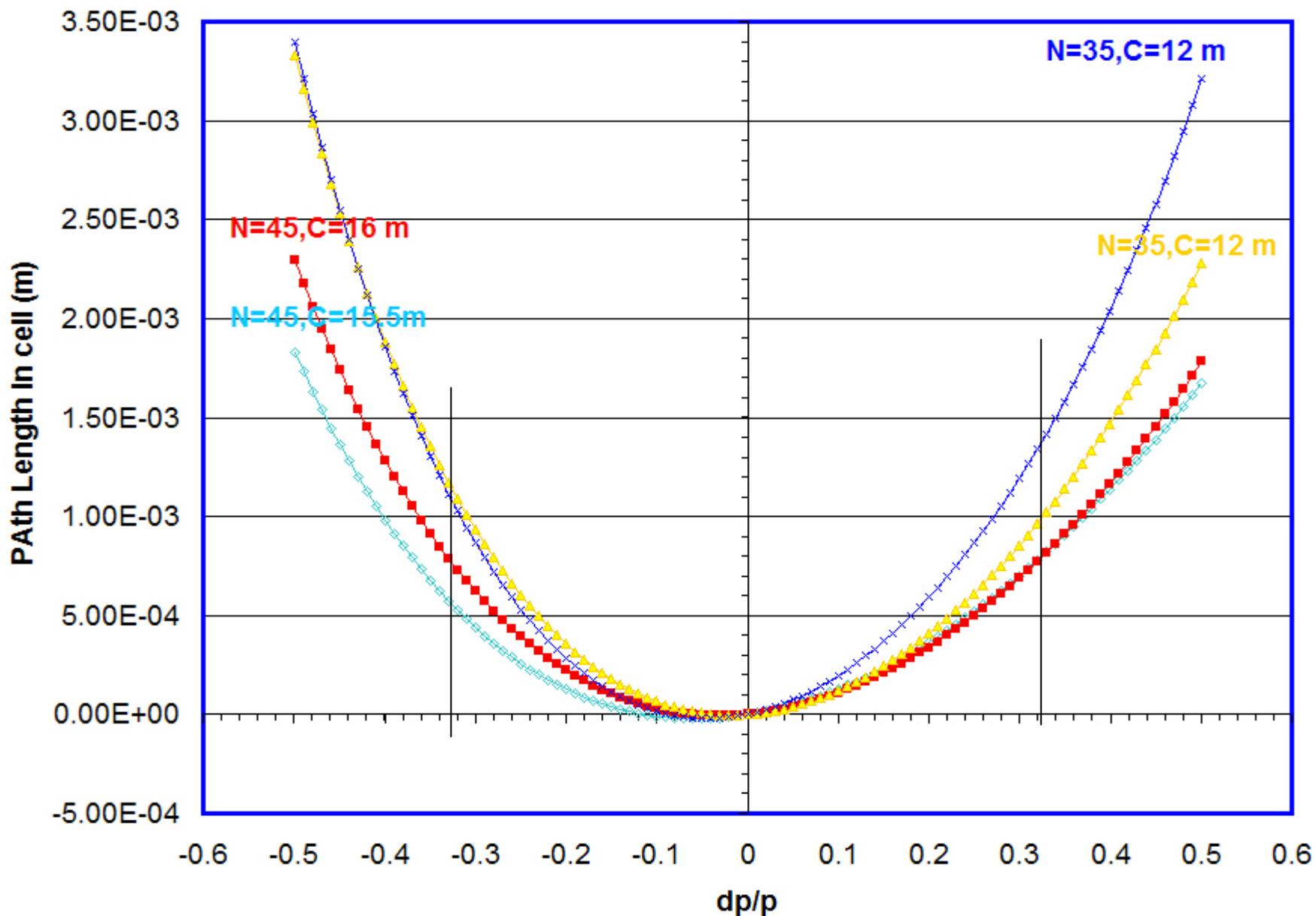
### Bending angles:

ANG<sub>QD</sub> = 0.2186575  
ANG<sub>QF</sub> = -0.039516

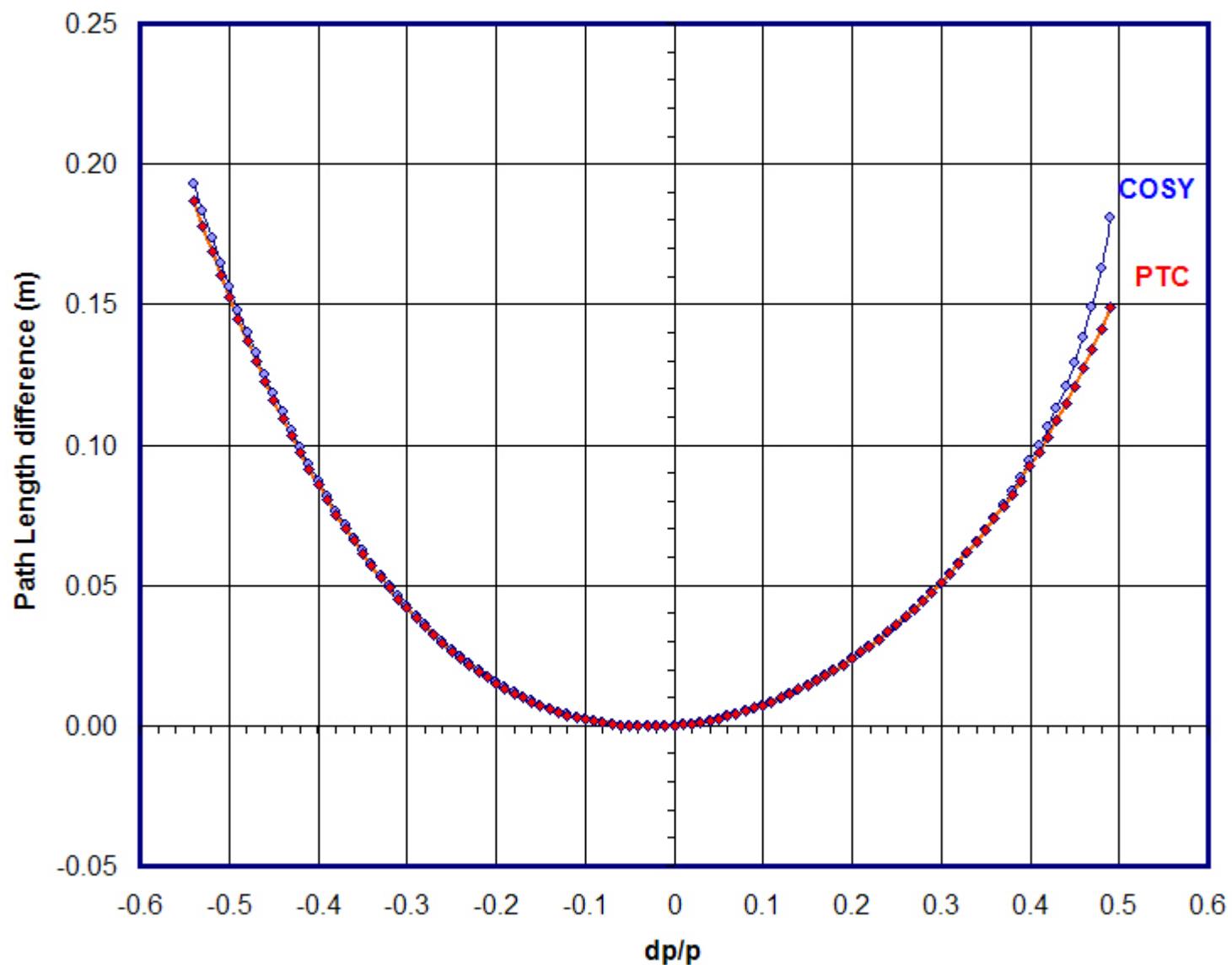
$$\theta_2/\theta_1 = 0.180$$

# Electron Demonstration Ring - Path Length in one cell

Number of cells: 45, 35,

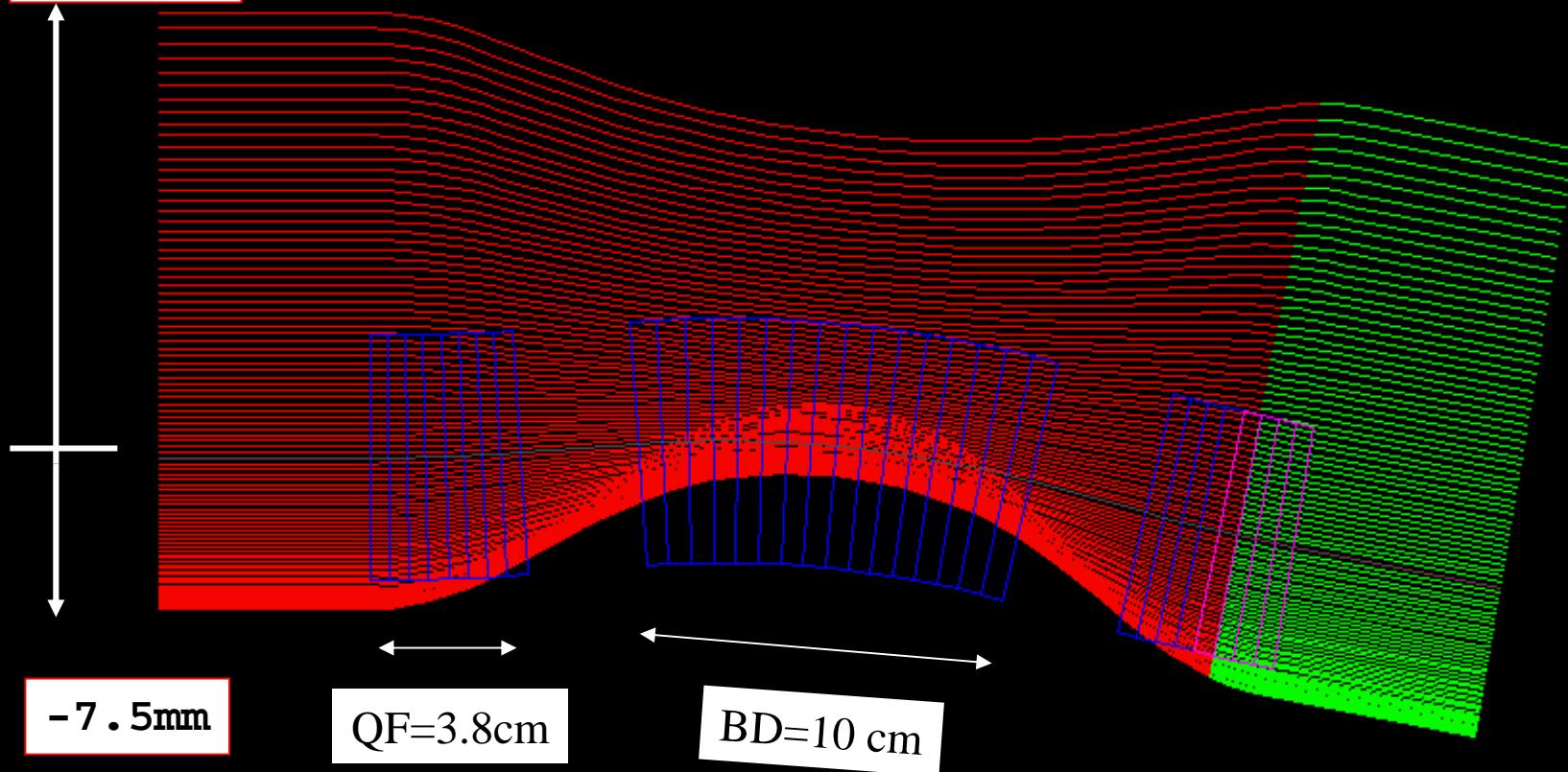


## Electron Demonstration Ring

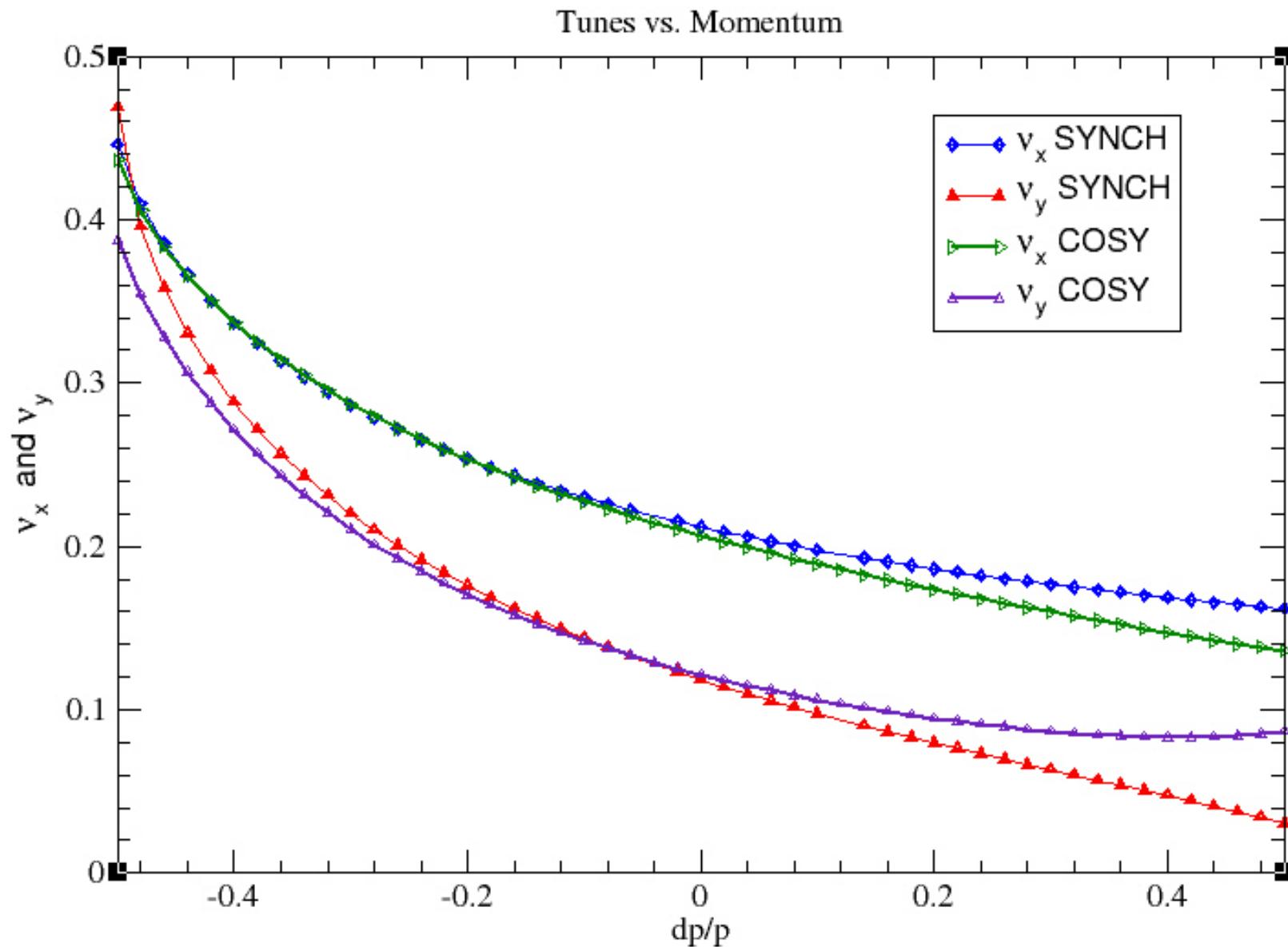


# PTC ORBITS in Electron demonstration ring

13.7 mm

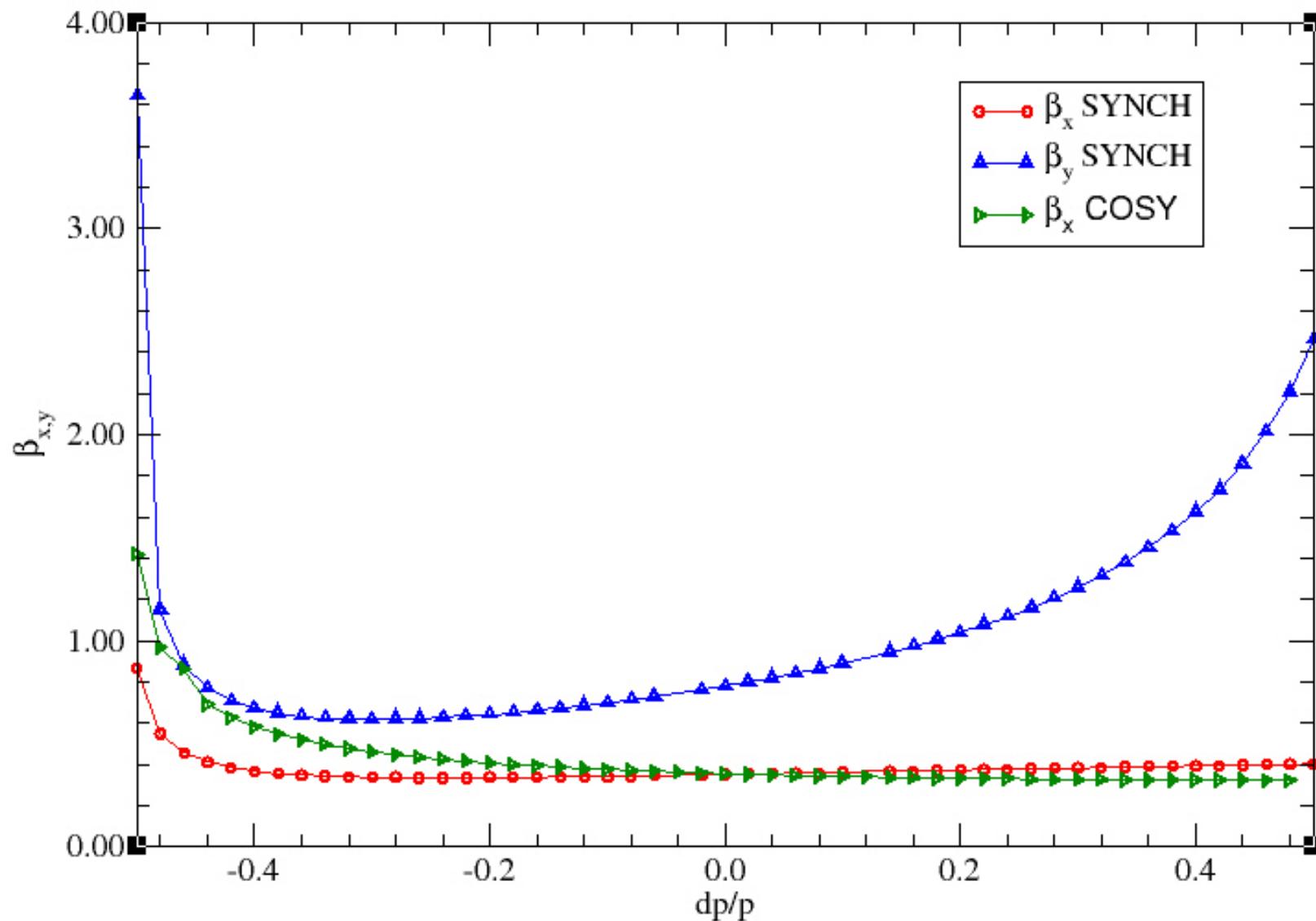


# Electron Demonstration Ring C=15 m , N = 45



# Non-Scaling FFAG Electron Demonstration Ring

## $\beta_{x,y}$ dependence on momentum



# Electron Demonstration Ring C=15 m , N = 45

Maximum/Minimum of Dispersion vs. Momentum

