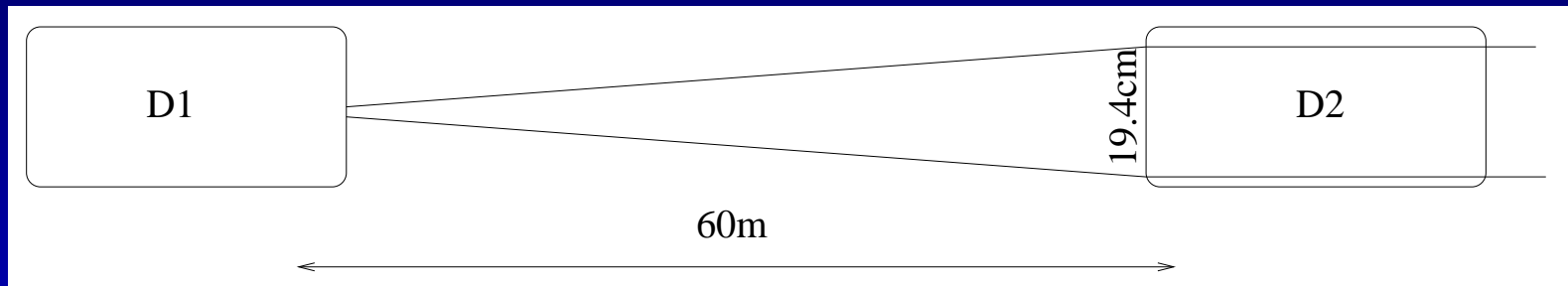# Scenarios for the Crab Cavity

Collecting thoughts from:
M. Giovannozzi, R. Calaga, R. Tomás and F. Zimmermann

Vertical Crab Cavity
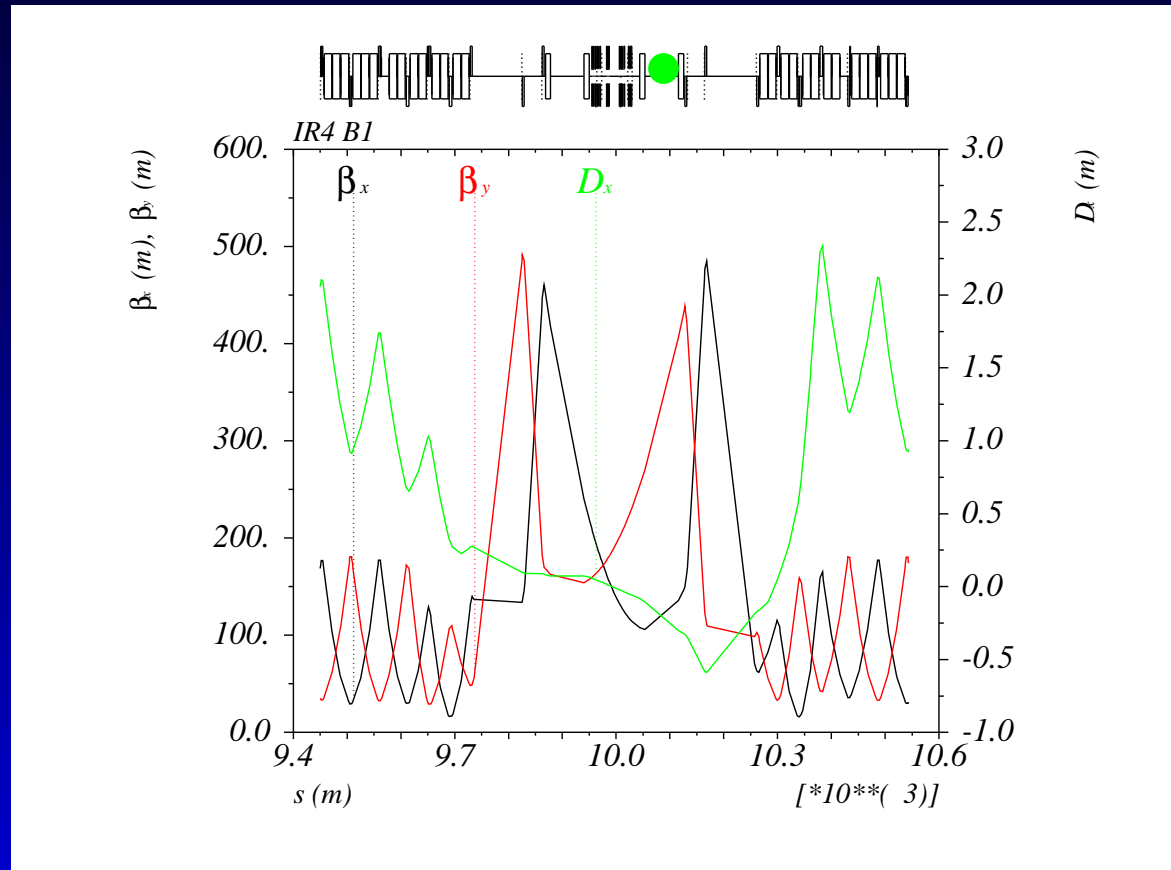
- Small radius of 800MHz CC = 0.75 * 23cm = 17.25cm

- Separation between Beam1 and Beam2 = 19.4cm

- Does it fit?

- Anyway between D1 and D2:

D1

D2

19.4cm

60m

- Place to be found in the IR after D2, $\beta < 0.5$km. Length?

Horizontal Crab Cavity

- IR4, beam1-beam2 = 40cm

- Betas < 300m, to be increased?

Scenarios

- Phase 0: Testing
  - 1 horizontal CC in IR4: $\Delta CO = 0.7\sigma$ @ $1\sigma_z$
  - 1 or 2 vertical CCs in IR5

- Phase I:
  - Global, $\Delta CO \approx 1.6\sigma$ @ $1\sigma_z \rightarrow$ Collimation problem
  - Local vertical $\rightarrow$ VV crossing scheme!
  - Common CC to beam1 and beam2

- Phase II (Phase I +)
  - Local horizontal $\rightarrow$ Extra Dipole between D1 and D2 to split beams.