

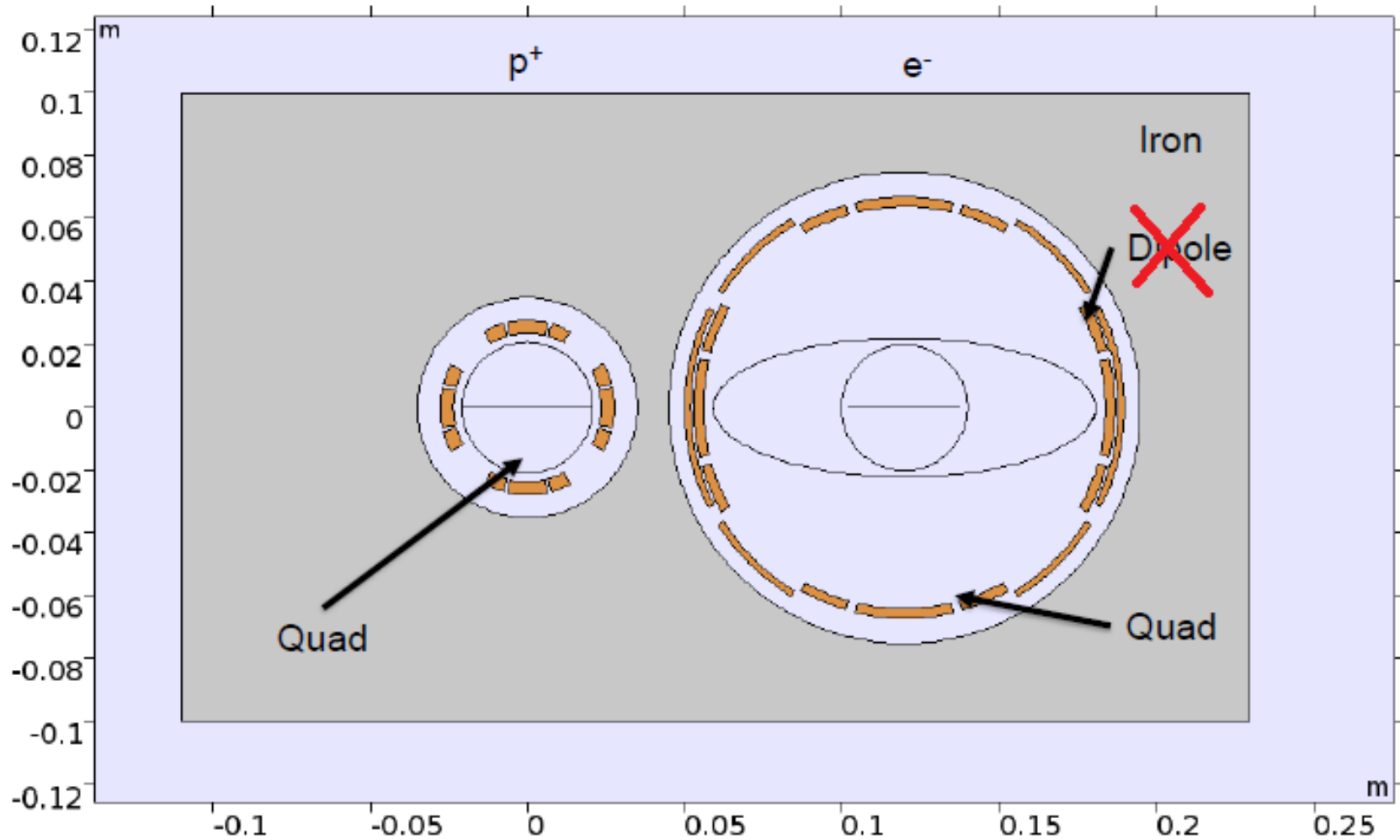
Jan IR Update 01/12/18

Bob Palmer

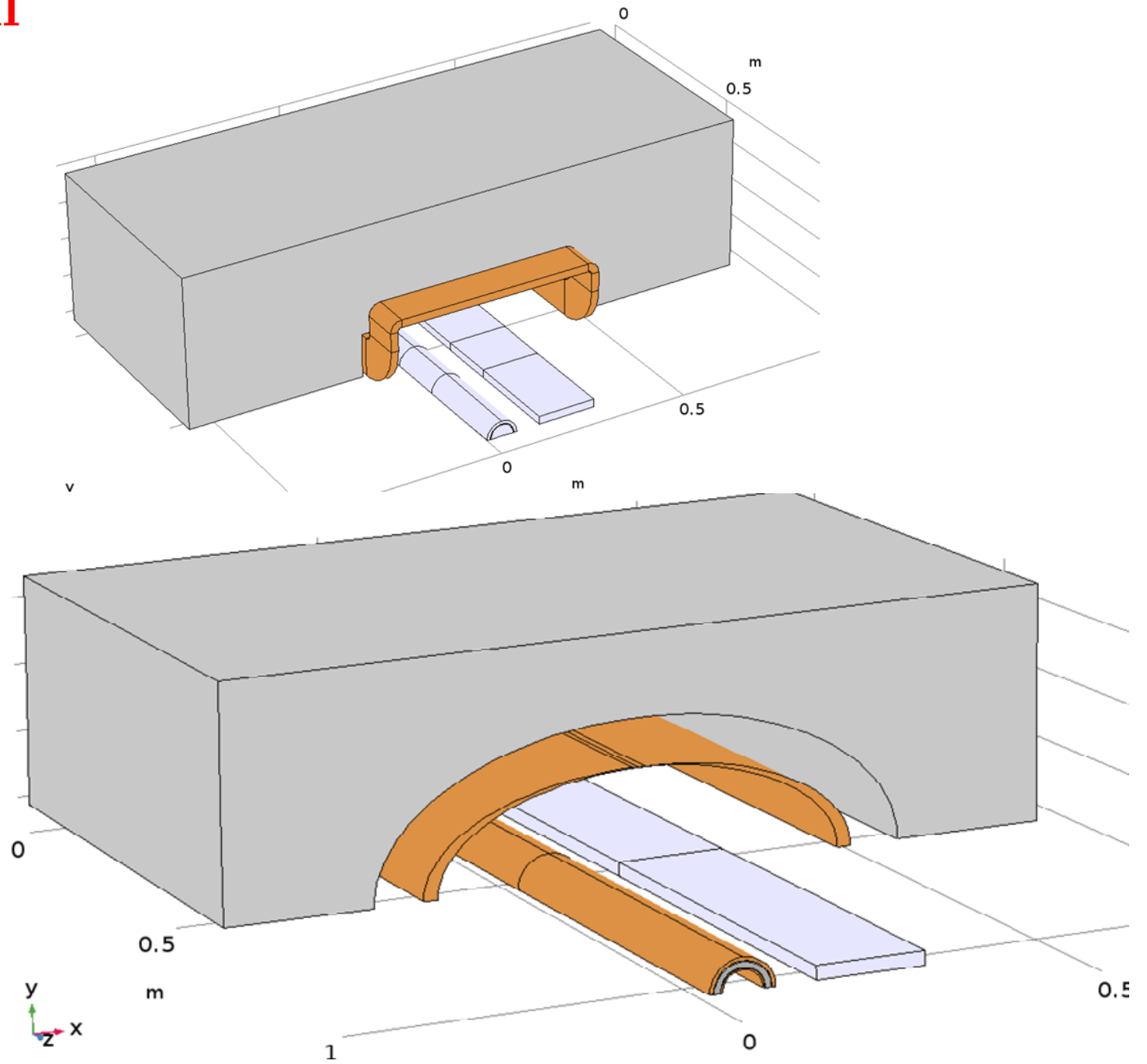
- Tapered C1 with Fe separation
- Elliptical B0
- Separate Function Rear electron magnets

tapered C1 with Fe separation

Based on synchrotron fan from 13.5 sigma electron tails



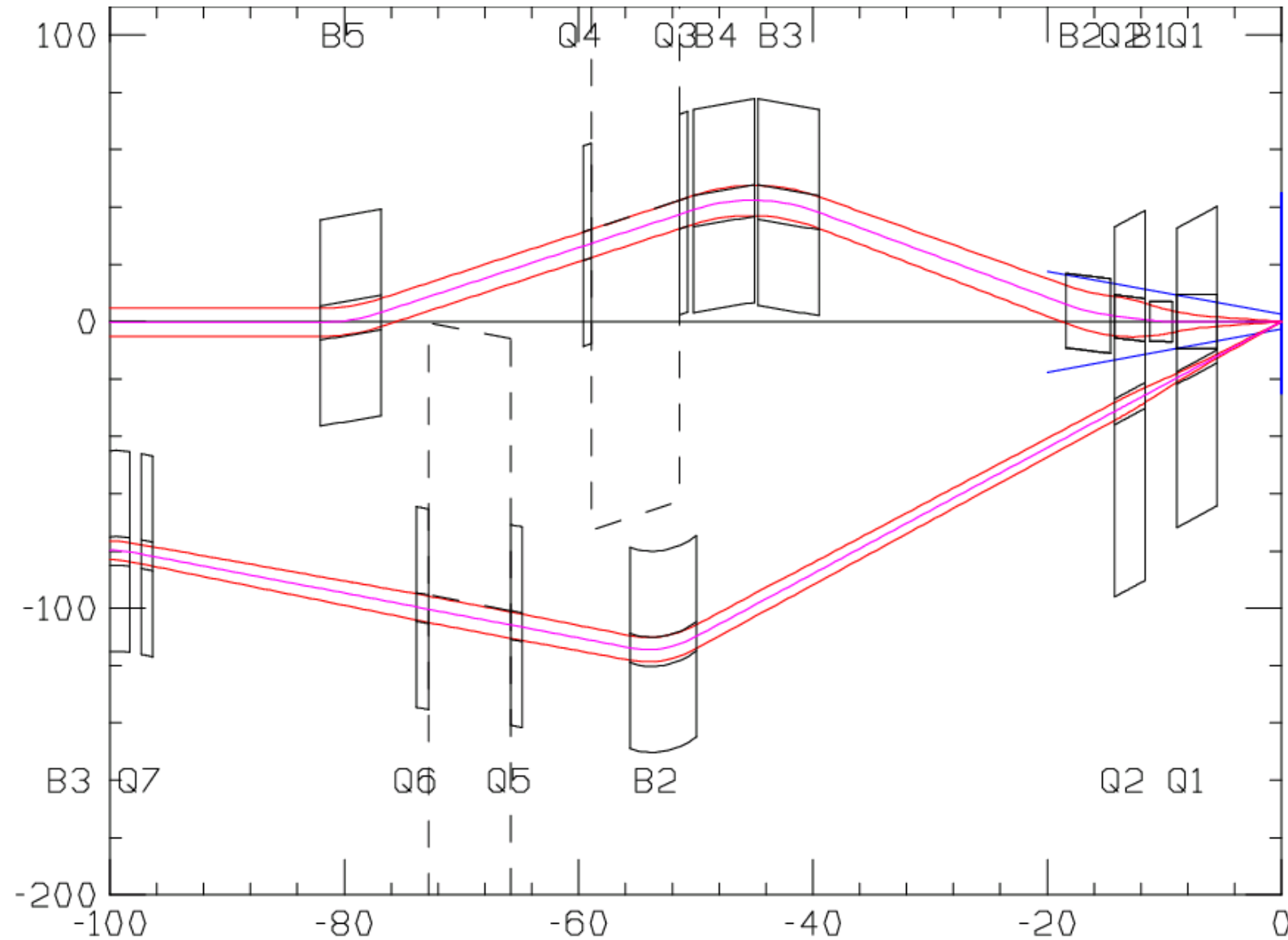
Elliptical B0



Change to Separate function magnets

- Quadrupole dimensions unchanged
- No bending in focus elements
- Separate bending between Q1 & Q2, and after Q2
- Bending fields set to get same x between B3 and B4
- Quads are aligned with and centred on electron beam
- Avoids high fields at some locations in combined magnets

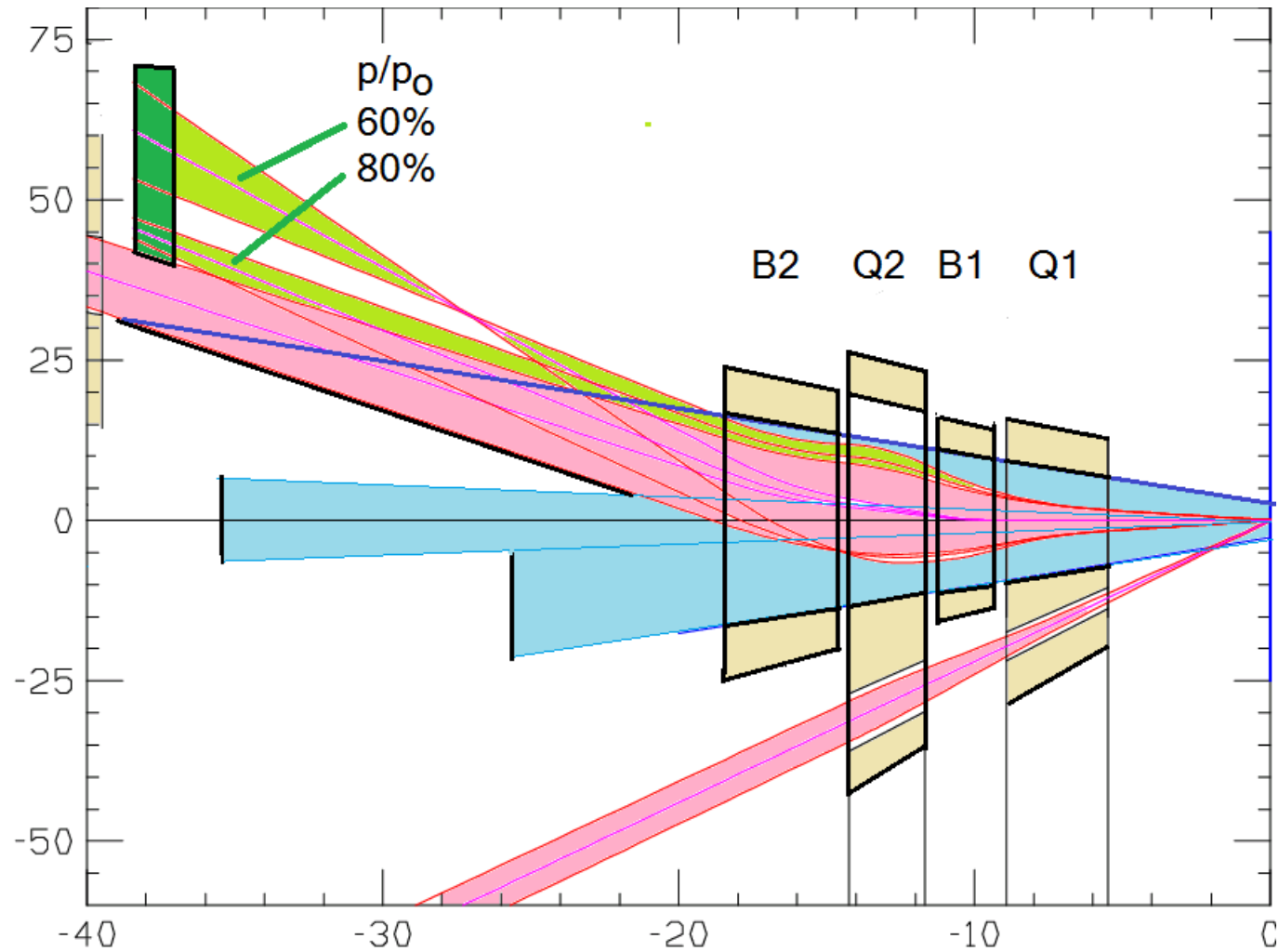
Overall layout



My layout basically unchanged (Steve has and will change de-

tails)

Detailed layout



Basically unchanged but easier magnets to design and simulate

Magnets

| | | L1 | DL | gap | x | θ | IR | OR | B | Grad) |
|----|----|-------|------|-------|------|----------|-------|----|--------|--------|
| | | m | m | m | cm | mrad | cm | cm | T | T/m |
| Q1 | 3 | 5.50 | 3.42 | 0.43 | 0.0 | 0.00 | 9.50 | | 0.390 | -4.107 |
| B1 | 5 | 9.35 | 1.89 | 0.43 | 0.0 | 1.00 | 7.00 | | 0.160 | 0.000 |
| Q2 | 7 | 11.67 | 2.57 | 0.37 | 0.6 | 5.00 | 7.50 | | 0.242 | 3.227 |
| B2 | 9 | 14.61 | 3.80 | 21.09 | 2.0 | 5.00 | 13.00 | | 0.160 | 0.000 |
| B3 | 11 | 39.50 | 5.20 | 0.30 | 38.1 | 6.97 | 6.00 | | -0.165 | 0.000 |
| B4 | 13 | 45.00 | 5.20 | 0.50 | 42.3 | -7.00 | 5.50 | | -0.165 | 0.000 |
| Q3 | 15 | 50.70 | 0.70 | 7.50 | 38.3 | -13.41 | 5.00 | | 0.042 | -0.840 |
| Q4 | 17 | 58.90 | 0.70 | 17.26 | 27.3 | -13.41 | 5.00 | | 0.003 | -0.060 |
| B5 | 19 | 76.86 | 5.20 | 40.00 | 3.2 | -6.99 | 6.00 | | 0.155 | 0.000 |