

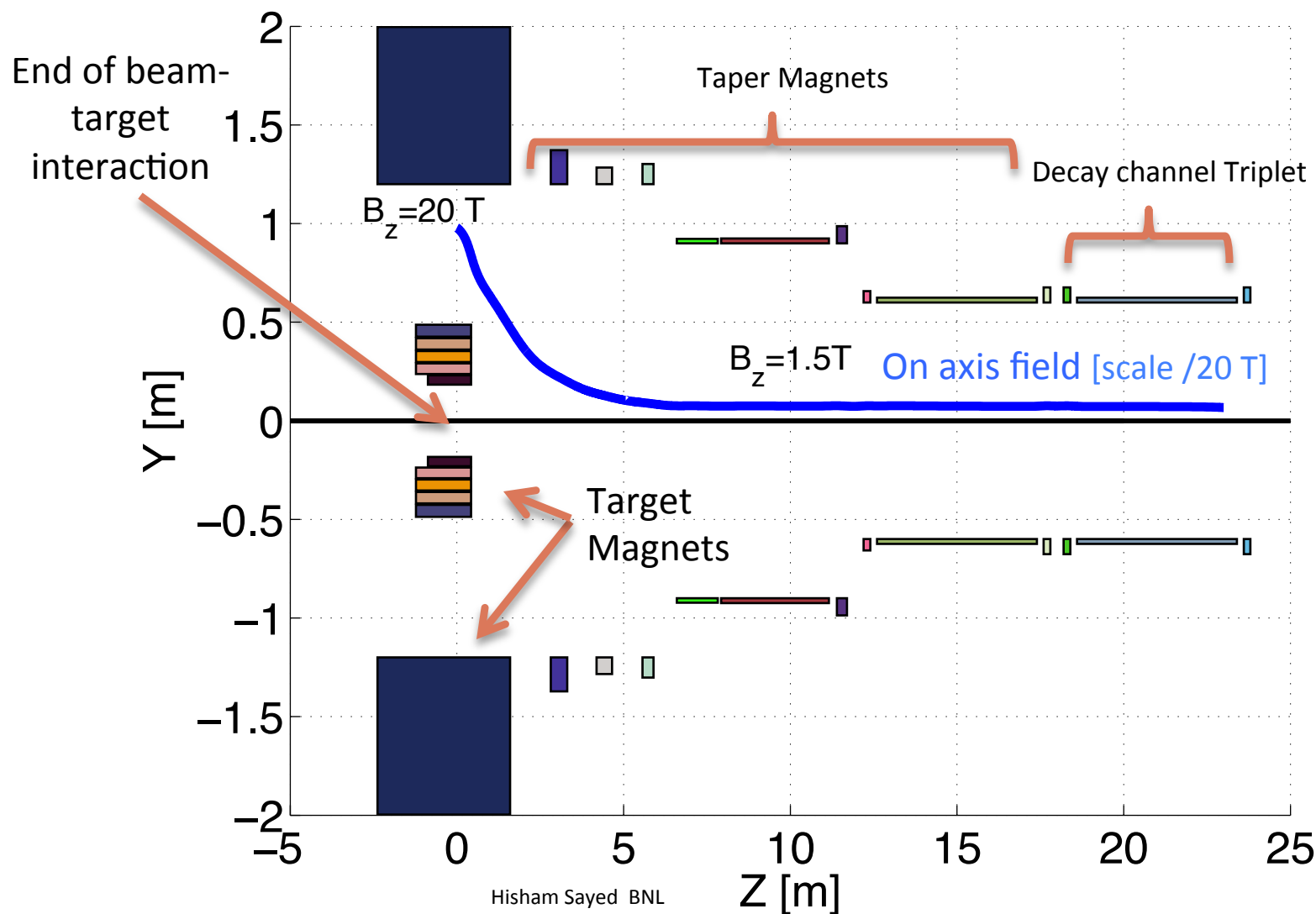
# OPTIMIZING THE MUON COLLIDER CAPTURE TARGET & FRONT END

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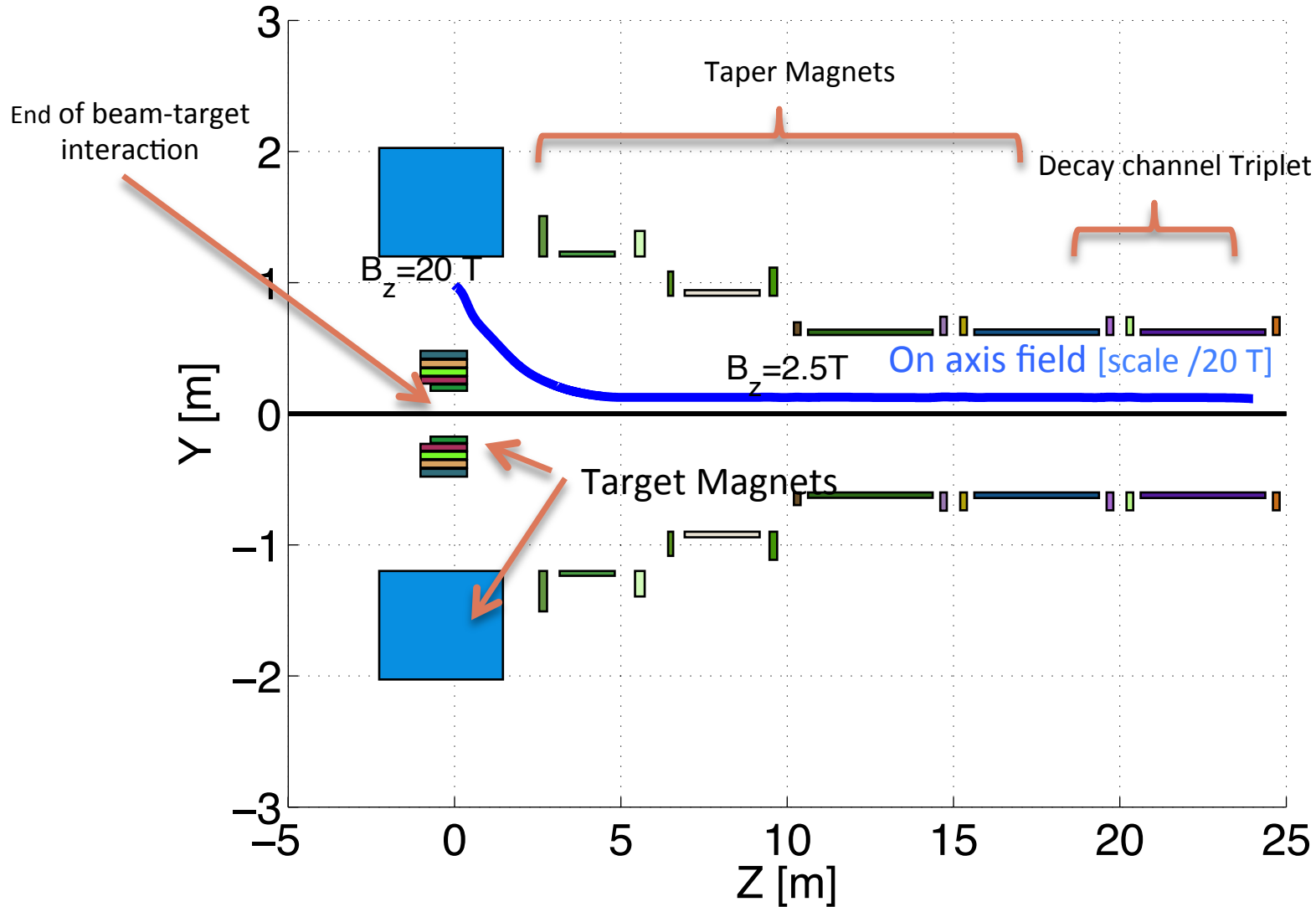
# NEW SHORT TARGET CAPTURE MAGNET (WEGGEL)

Muon Target Short Taper Magnet taper length = 7 m-  $B_z=20-1.5$  T



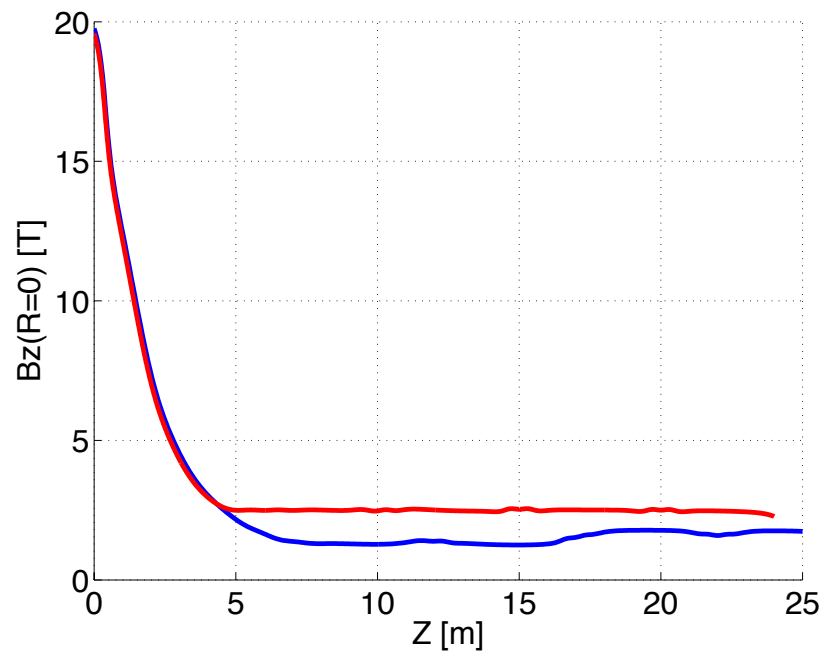
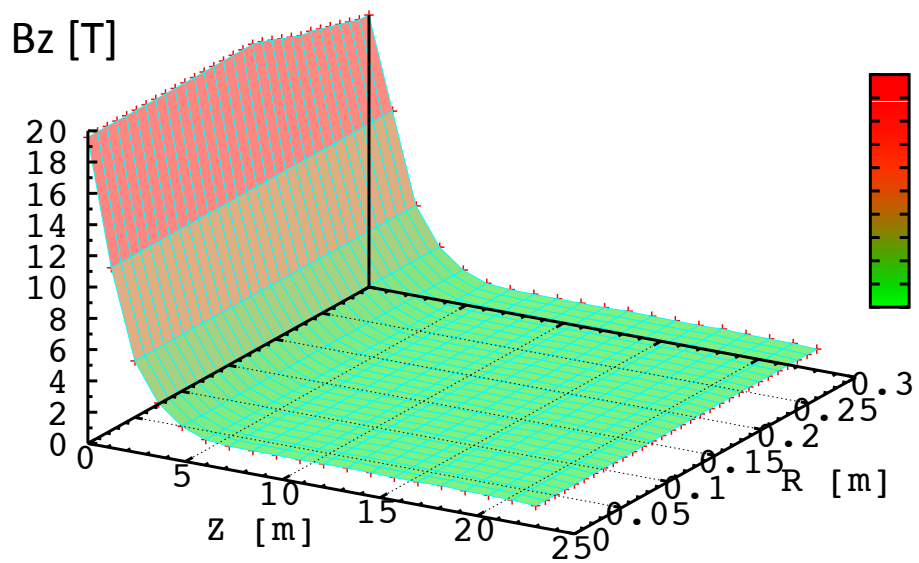
# NEW SHORT TARGET CAPTURE MAGNET (WEGGEL)

Muon Target Short Taper Magnet taper length = 5 m- B=20-2.5 T



# NEW SHORT TARGET CAPTURE MAGNET (WEGGEL)

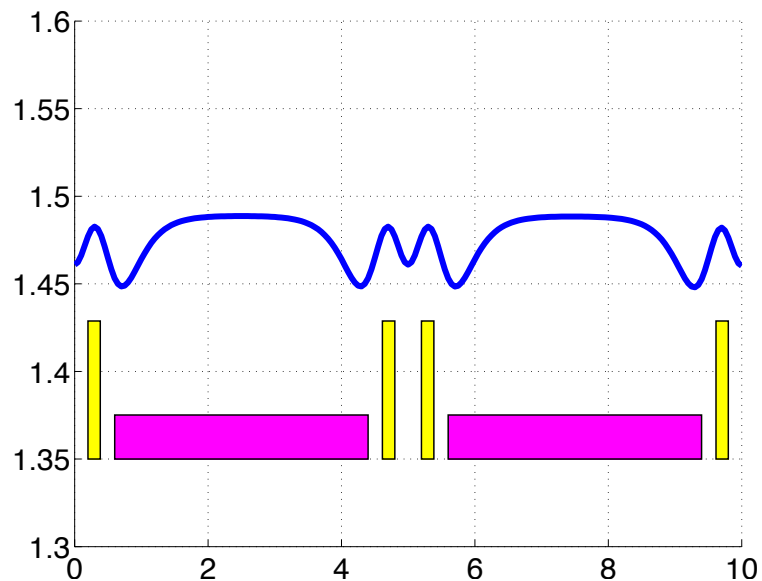
Muon Target Short Taper Magnet taper length =5-7 m- B=20-1.5 & 2.5 T



Target SC Magnets Field Map

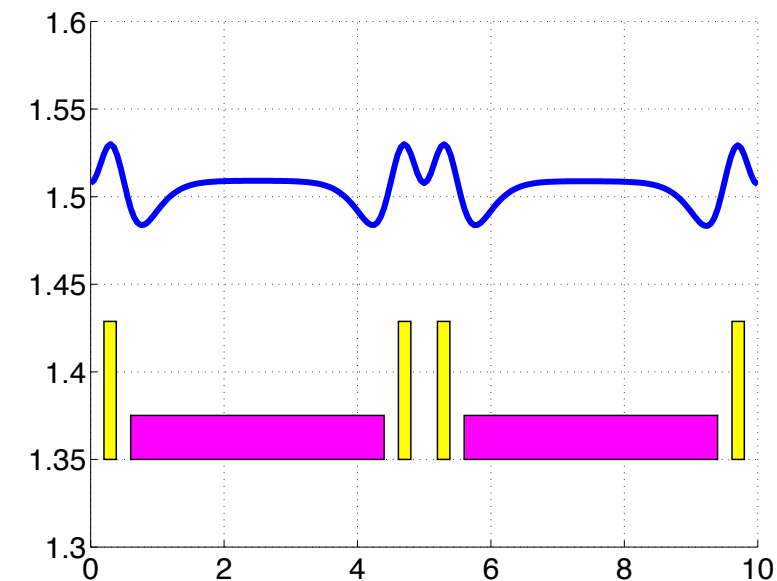
Field map calculated from coil current densities using Icool grid routine

# NEW DECAY CHANNEL MAGNET (WEGGEL)



## IDS120L20-1.5T 7m

| Magnet | Length [m] | Inner R [m] | Outer R [m] | J [A/mm <sup>2</sup> ] |
|--------|------------|-------------|-------------|------------------------|
| 1      | 0.1850188  | 0.6         | 0.6787956   | 47.1753792             |
| 2      | 3.7989294  | 0.6         | 0.6251143   | 47.1753792             |
| 3      | 0.1850188  | 0.6         | 0.6787956   | 47.1753792             |

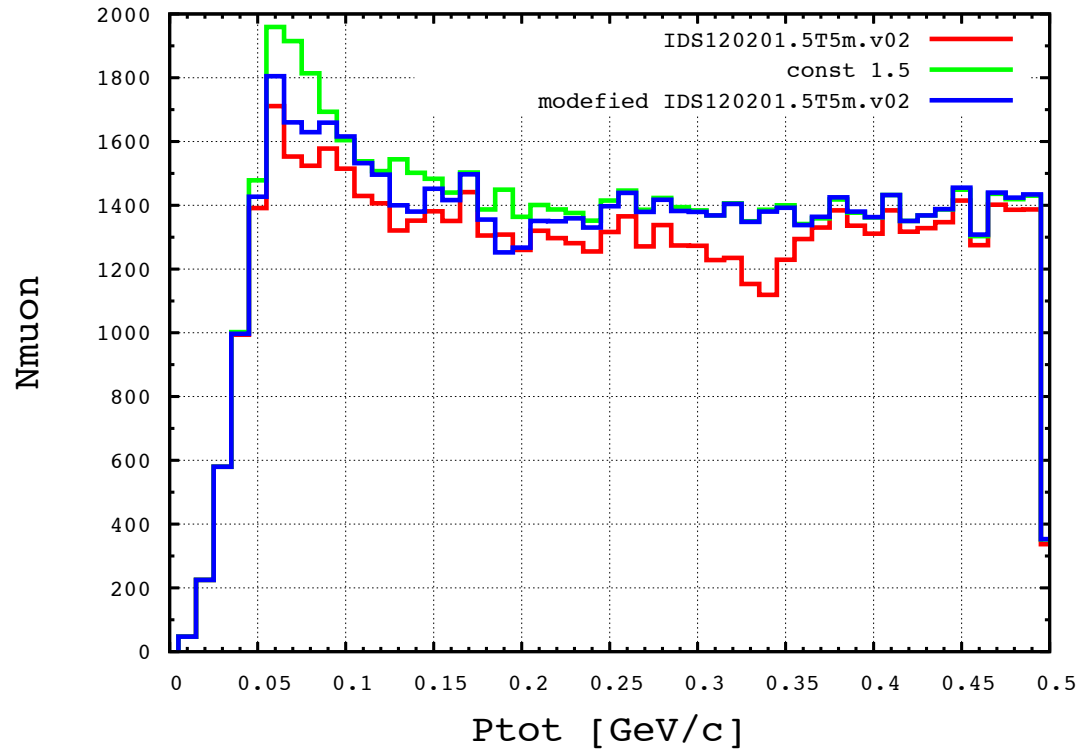


## Modified - IDS120L20-1.5T 7m

| Magnet | Length [m] | Inner R [m] | Outer R [m] | J [A/mm <sup>2</sup> ] |
|--------|------------|-------------|-------------|------------------------|
| 1      | 0.19       | 0.6         | 0.68        | 47.18                  |
| 2      | 3.8        | 0.6         | 0.63        | 40.00                  |
| 3      | 0.19       | 0.6         | 0.68        | 47.18                  |

# NEW DECAY CHANNEL SOLENOID STOP BAND STUDY

Tracking 1E5 muons through decay channel -10 cells (50 m)



Transmission:

|                             |     |
|-----------------------------|-----|
| Constant 1.5 Solenoid Field | %67 |
| IDS120L20to1.5T7m           | %62 |
| Modified IDS120L20to1.5T7m  | %66 |