Study 2a front end update

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- Mawellian field from table of coils
  - constant fields $\rightarrow$ periodic solenoids
  - careful matching at transitions
  - collection coils moved radially for extra lifetime
  - optimized collection profile
- radial constraint from tapered beam pipe
- RF windows in buncher
- discrete frequency buncher and rotator cavities
- cooler frequency exactly at 201.25 MHz
- Be coating over LiH absorbers
- new beam distribution with 33 mr crossing angle
- corrected version of ICOOL
Desired collection field profile

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  - 12.2 m taper
  - $B_{\text{decay}} = 1.75$ T

Coil design

- $\Delta B_z$ [T]
  - $z$ [m]

$\Rightarrow +0.019$ improvement in $\mu/p(30/150)$ over Bob’s design

Thanks Kevin!
Total $\mu/p$ with $100 < p < 300$ MeV/c

$\rightarrow \sim$same through buncher

$\mu/p$ into 30/150 mm with $100 < p < 300$ MeV/c

$\rightarrow \sim$same through rotator
Beta function from rotator to cooler

\[ \beta \] vs \( z \) [m]

\[ z \text{ [m]} \]

\[ \beta \text{ [m]} \]

\( z \) [m]

\[ 0 \ 50 \ 100 \ 150 \ 200 \ 250 \ 300 \ 350 \]

\[ 0.0 \ 0.2 \ 0.4 \ 0.6 \ 0.8 \ 1.0 \]

\( \rightarrow \) matching seems OK now

**Summary:** \( \mu/p \) into accelerator acceptance with same input beam and latest ICOOL version

- realistic Study 2a: \( 0.144 \pm 0.007 \)
- baseline Study 2a: \(~0.20\)
- corrected Study 2 (15 mm): \( 0.149 \pm 0.007 \)