

On-axis and X-band linac designs enable improved magnetic shielding in MRI-Linac systems

Brendan Whelan, Paul Keall

Best in Physics

8/1/2018

10:15am - 12:15pm

Karl Dean Ballroom B1

1.

Improves shielding effect

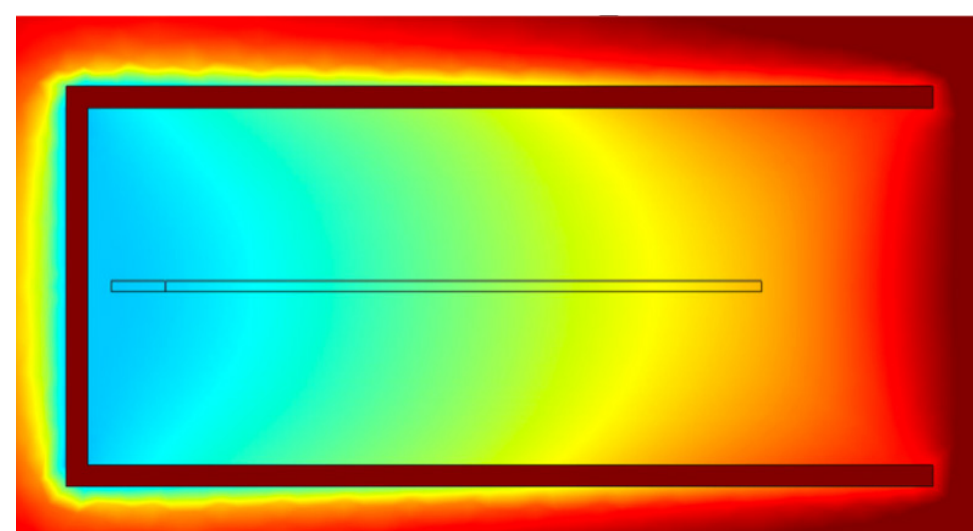
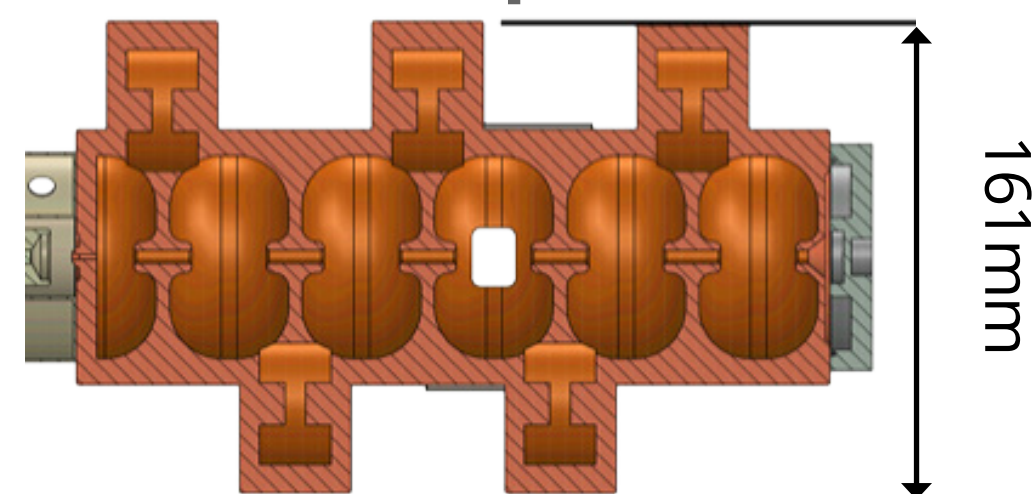
(factors up to 40)

2.

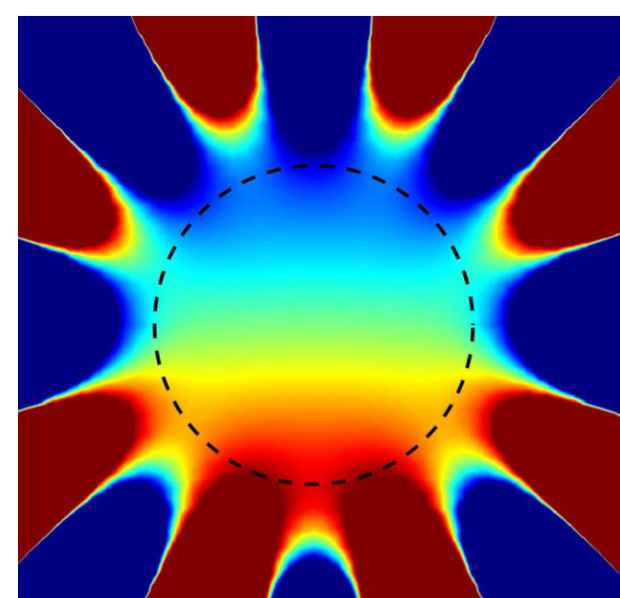
Reduces impact of shield on MRI scanner

(factors up to 4)

S-band side coupled (standard)

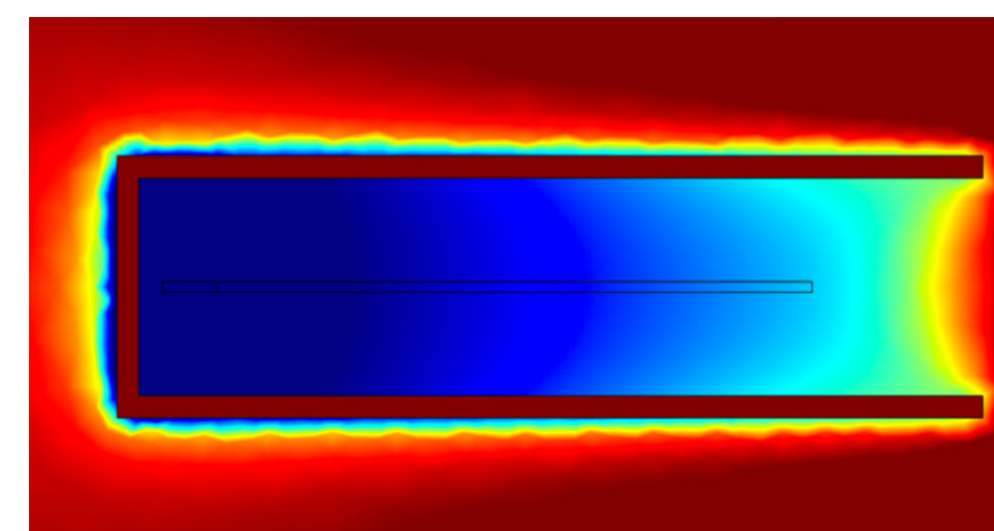
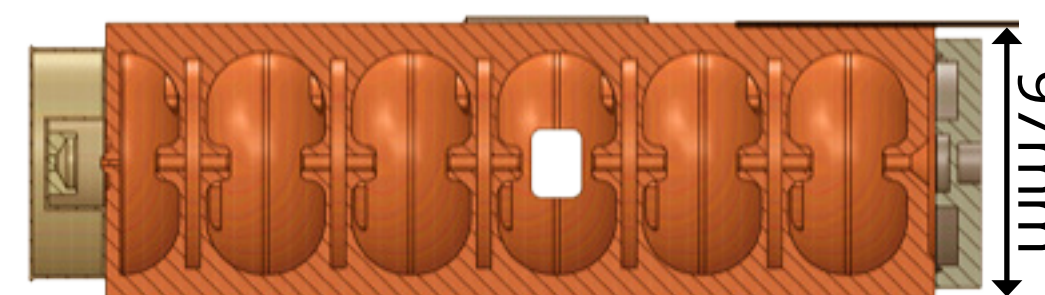


Mean field: 89 G

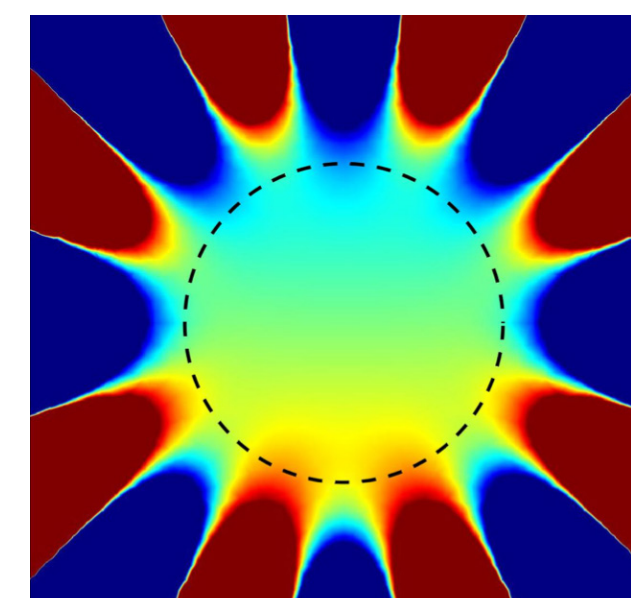


Heterogeneity: 35 PPM

S-band on-axis

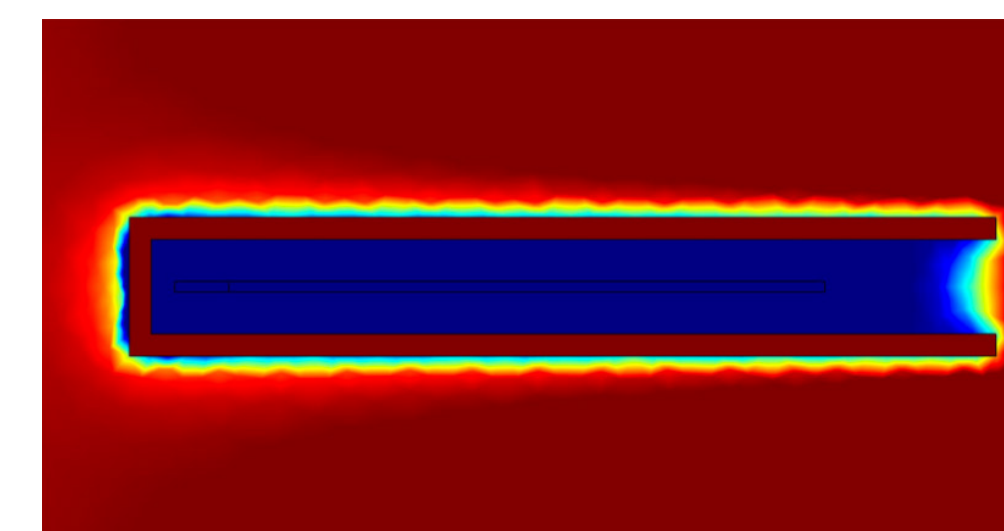


Mean field: 18 G

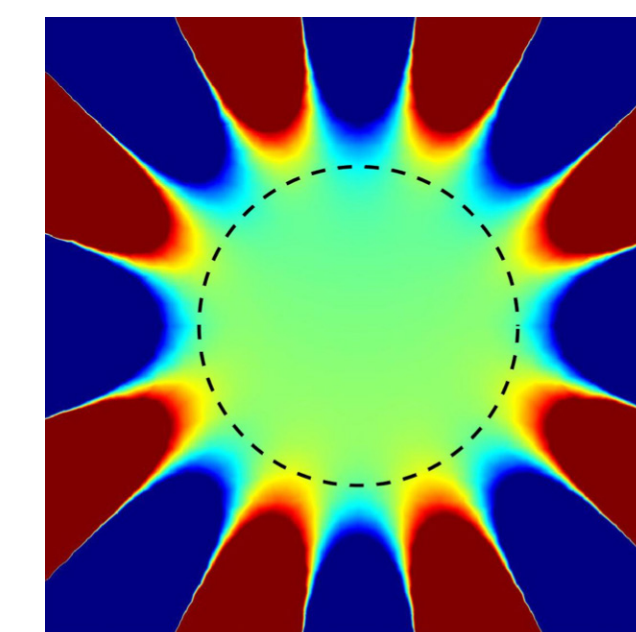


Heterogeneity: 18 PPM

X-band on-axis



Mean field: 5 G



Heterogeneity: 9 PPM

B (G)
398
158
63
25
10

+20
PPM
-20
PPM