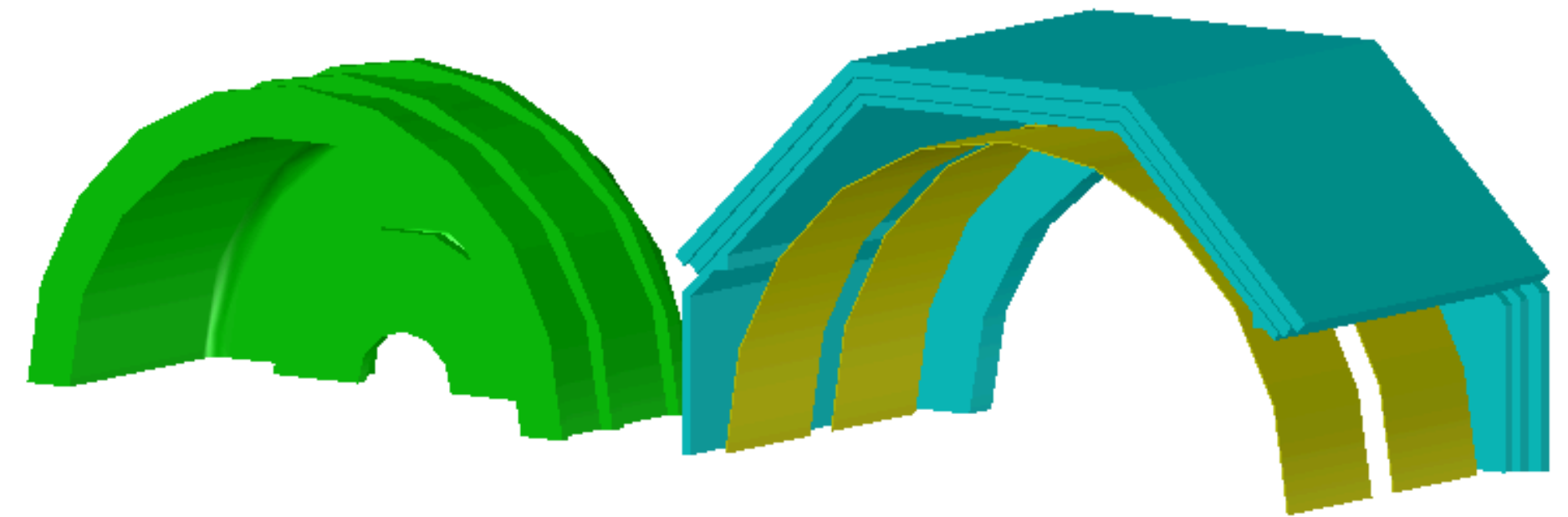


# SPY@DND new yoke: part 2

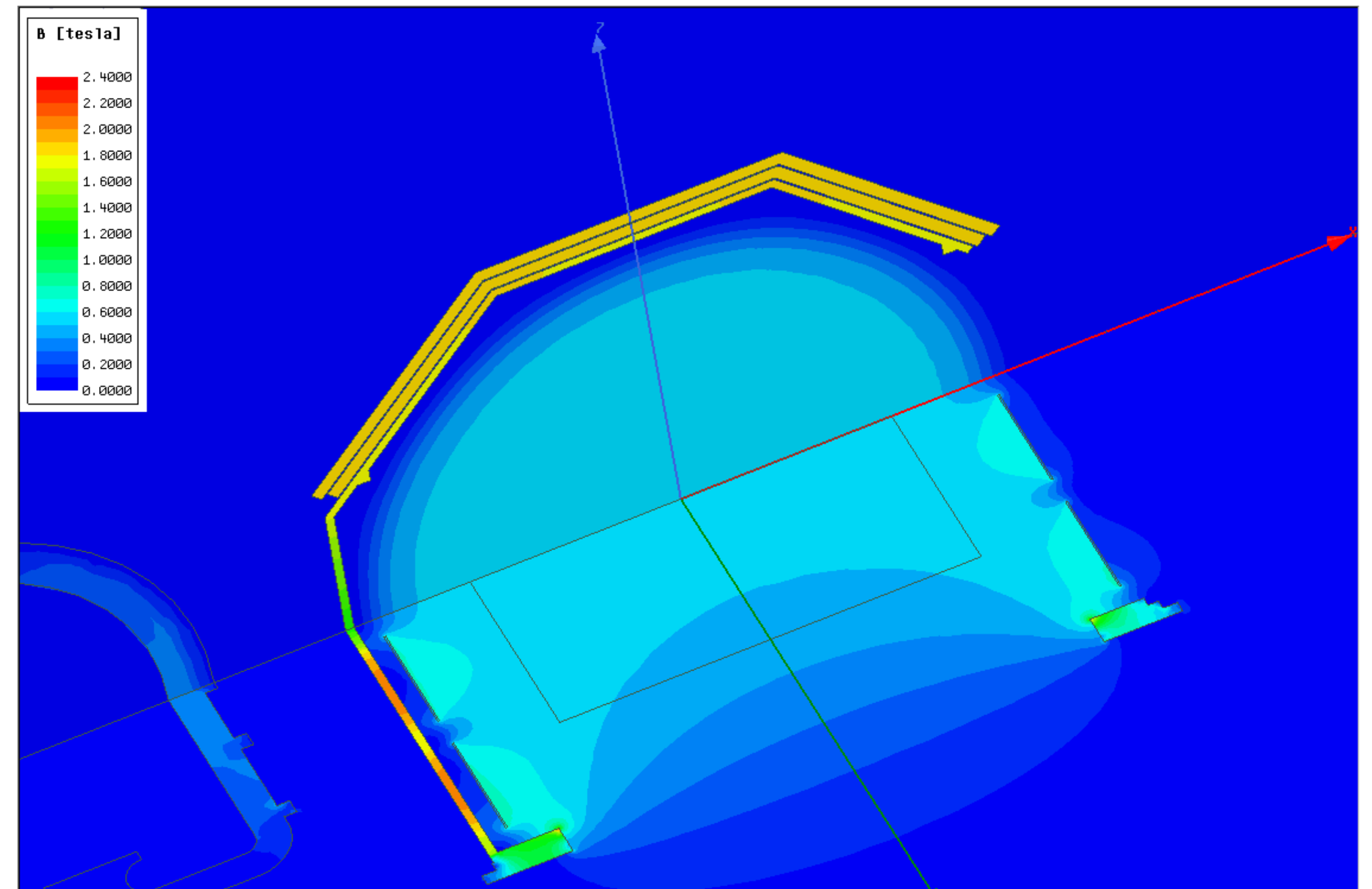
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Andrea Bersani

# Thick/thin yoke: SPYDND10

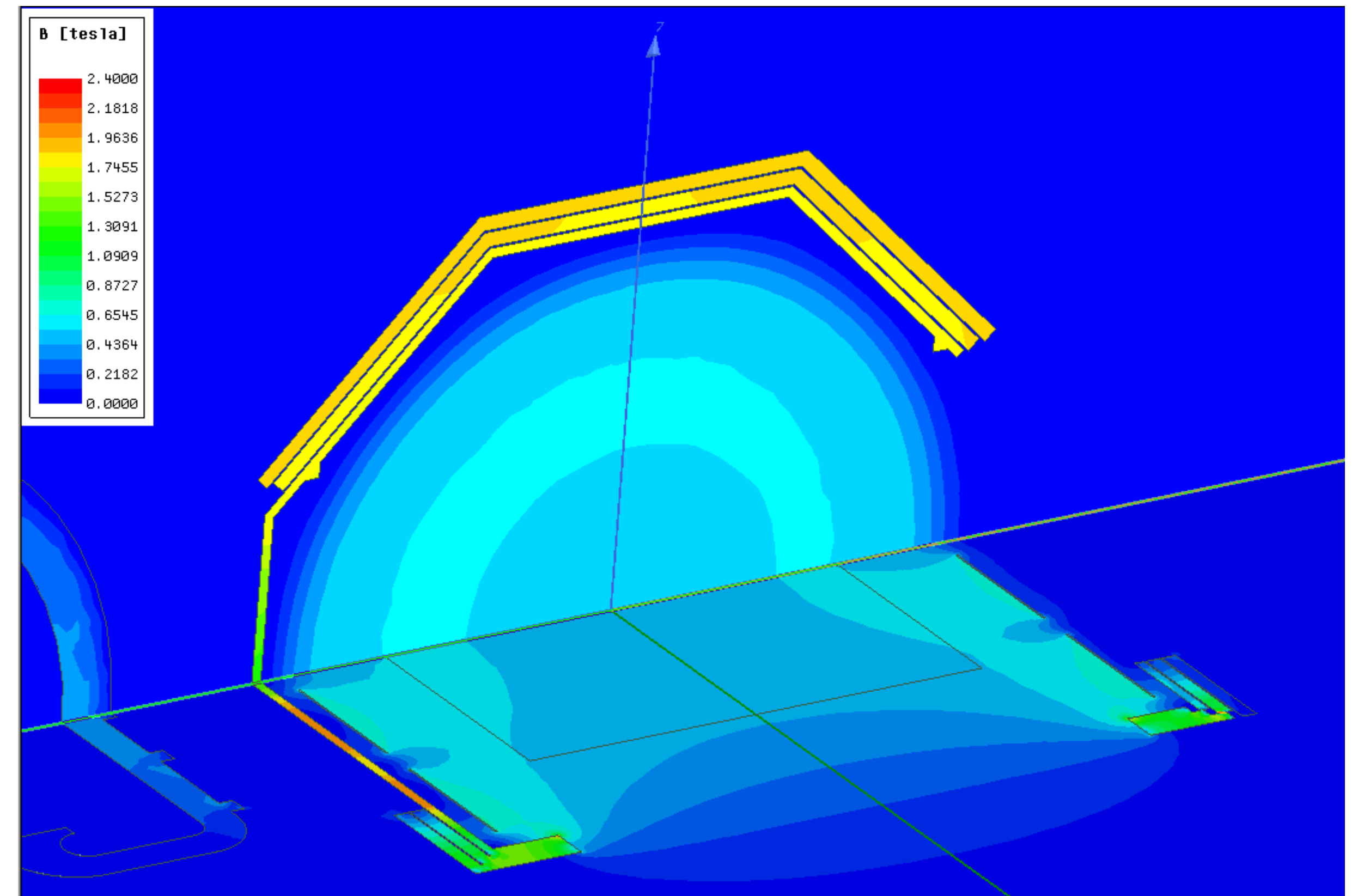
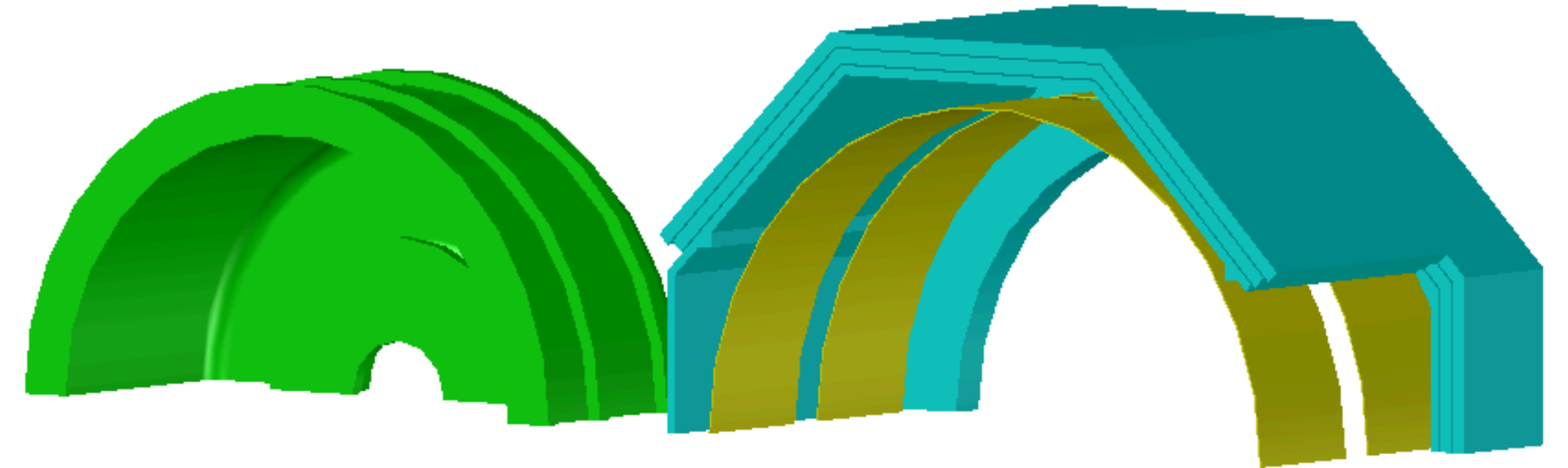


- ↪ Window towards LArTPC
- ↪ Thin yoke towards SAND
- ↪ Thick iron yoke elsewhere
- ↪ Wide hole on end-caps



# Thick/thin yoke, end rings: SPYDND11

- ↪ Window towards LArTPC
- ↪ Thin yoke towards SAND
- ↪ Thick iron yoke elsewhere
- ↪ Wide hole on end-caps
- ↪ "Rings" around the window



# Parameters comparison

	SPYDND06	SPYDND07	SPYDND08	SYDND09	SPYDND10	SPYDND11
<b>Bmin on TPC</b>	0.4454 T	0.4981 T	0.4580 T	0.4499 T	0.4522	0.4540
<b>Bmax on TPC</b>	0.5588 T	0.5238 T	0.5781 T	0.5614 T	0.5675	0.5682
<b>Force along beam</b>	160 kN	100 kN	460 kN	60 kN	260 kN	124 kN
<b>Force along axis</b>	2.15 MN	0.95 MN	2.15 MN	2.1 MN	2.1 MN	2 MN
<b>Current per coil</b>	1.05 MA	0.95 MA	1 MA	1 MA	1 MA	1 MA
<b>Stored energy</b>	46.6 MJ	41 MJ	46 MJ	45 MJ	45.5 MJ	4502 MJ
<b>Force on SAND</b>	120 kN	104 kN	12 kN	32 kN	24 kN	28 kN

- ↪ Force along beam: force felt by the 4 coils pointing towards SAND
- ↪ Force along axis: force felt by 2 coils pointing towards the other 2 coils
- ↪ Force on SAND: force felt by SAND yoke, generated by stray field

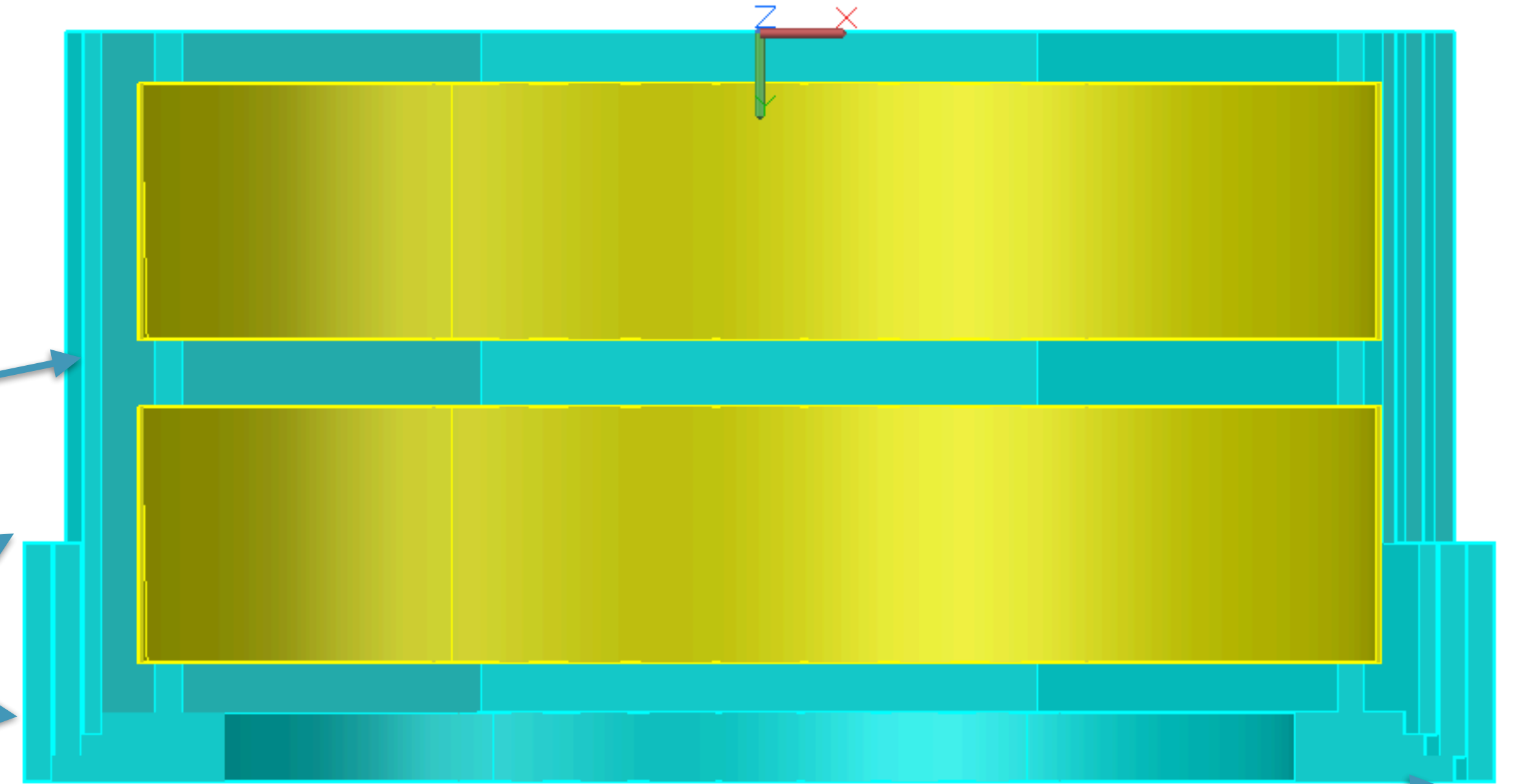
# Next steps

↪ Use the second layer and not the first

↪ Remove material here

↪ Optimise the length of the ring

↪ Optimise this section



# Comments

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- ↪ The most promising design is the "thin yoke towards SAND"
- ↪ The introduction of a "ring" close to the end caps seems advantageous
- ↪ The optimisation of this design is still ongoing
- ↪ Closed end-caps should be investigated (at least partially closed)