

Problem:

Modular coil solutions 0917 / 0918 have low field errors, but the coils interfere in the trough region.

Issues:

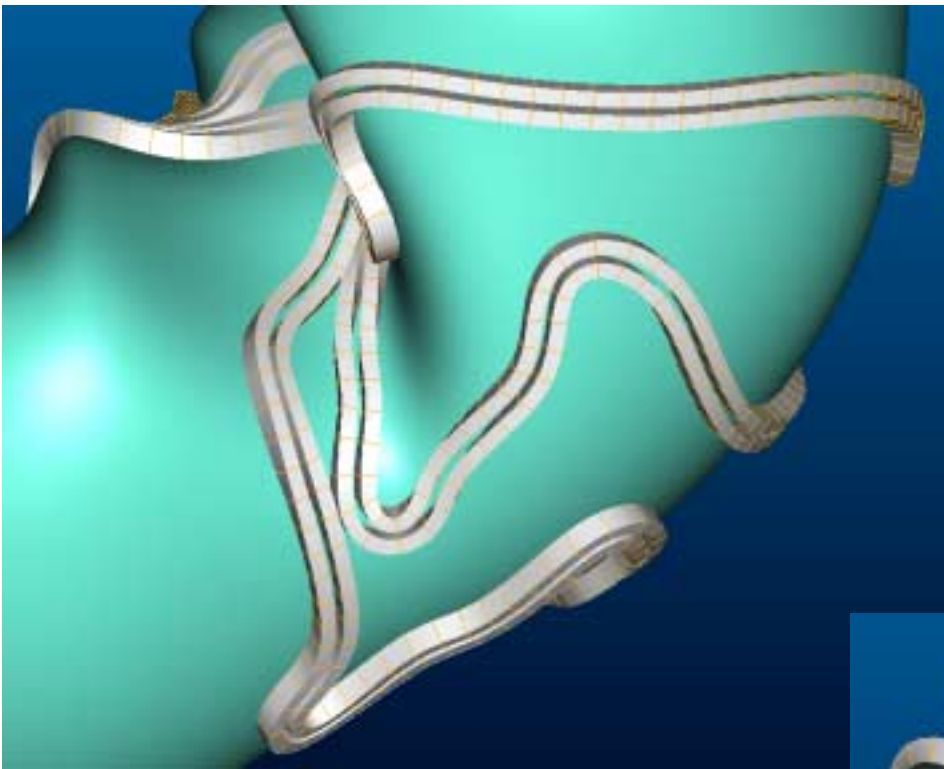
- 1) ability to make smooth local alignments
- 2) winding centers appear to have radial overlap
- 3) coil-plasma gap is too small for new vessel

Solution:

Modular coil case 0920b2 has much better coil-coil spacing, but higher field errors.

Issues:

- 1) field errors
- 2) still some twist problems when normal to ws
- 3) standoff from new vessel



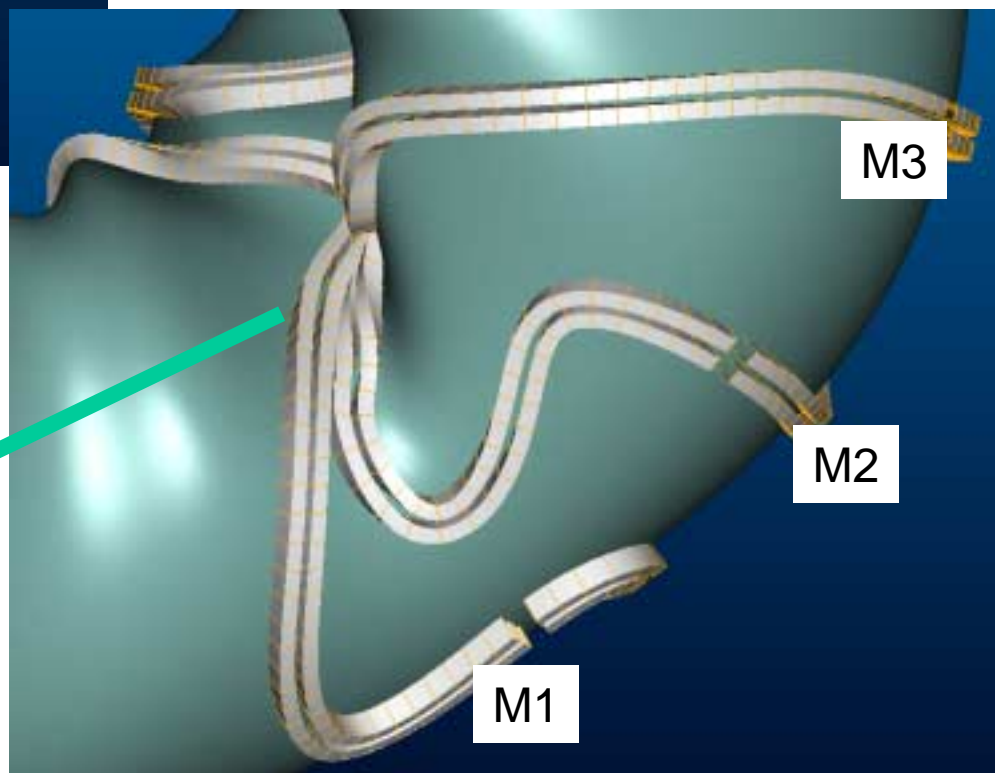
		Min Coil-Coil Dist (cm)		
		Coil #	Case 0918a2	Case 0920b2
$v=1/2$	M1			
			13.7	19.0
	M1		11.2	11.9
$v=0$	M2			
			12.2	17.4
	M3			
			12.4	15.3
	M3			

* Case 0918a2 is similar to 0917b1

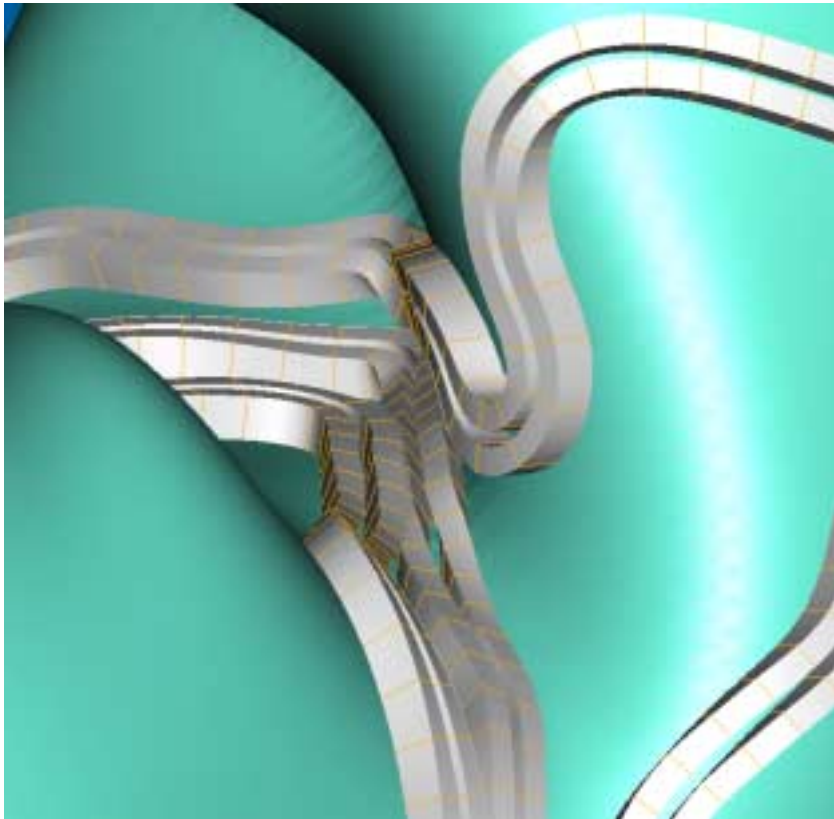
0920b2

0917b1

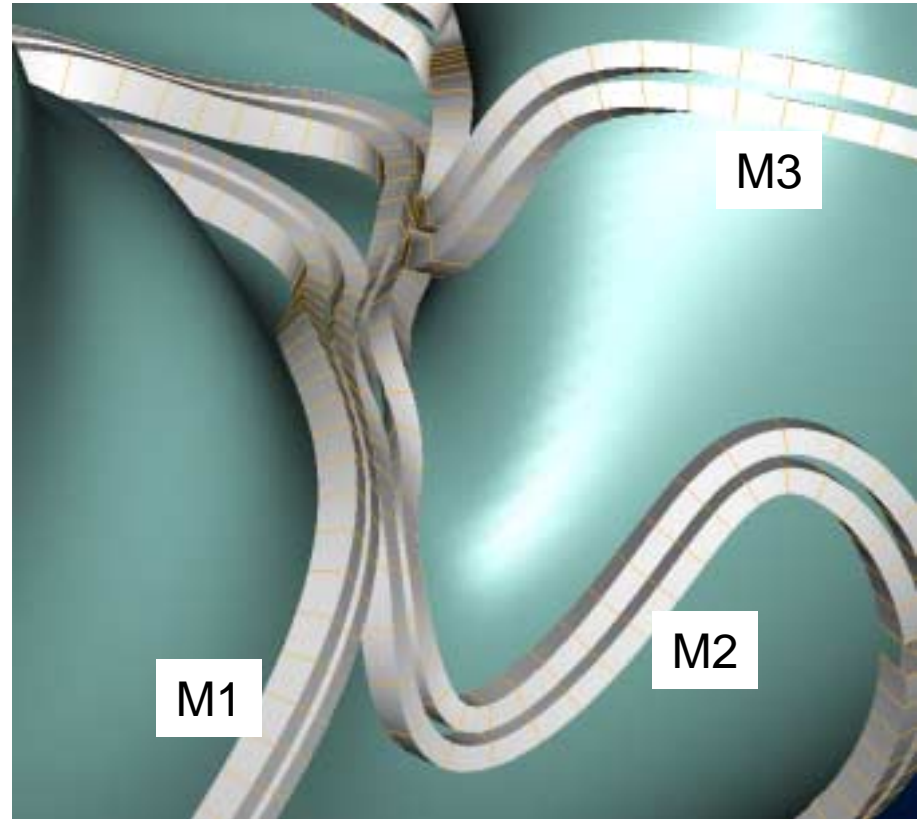
Plan view



Inboard region, looking down trough

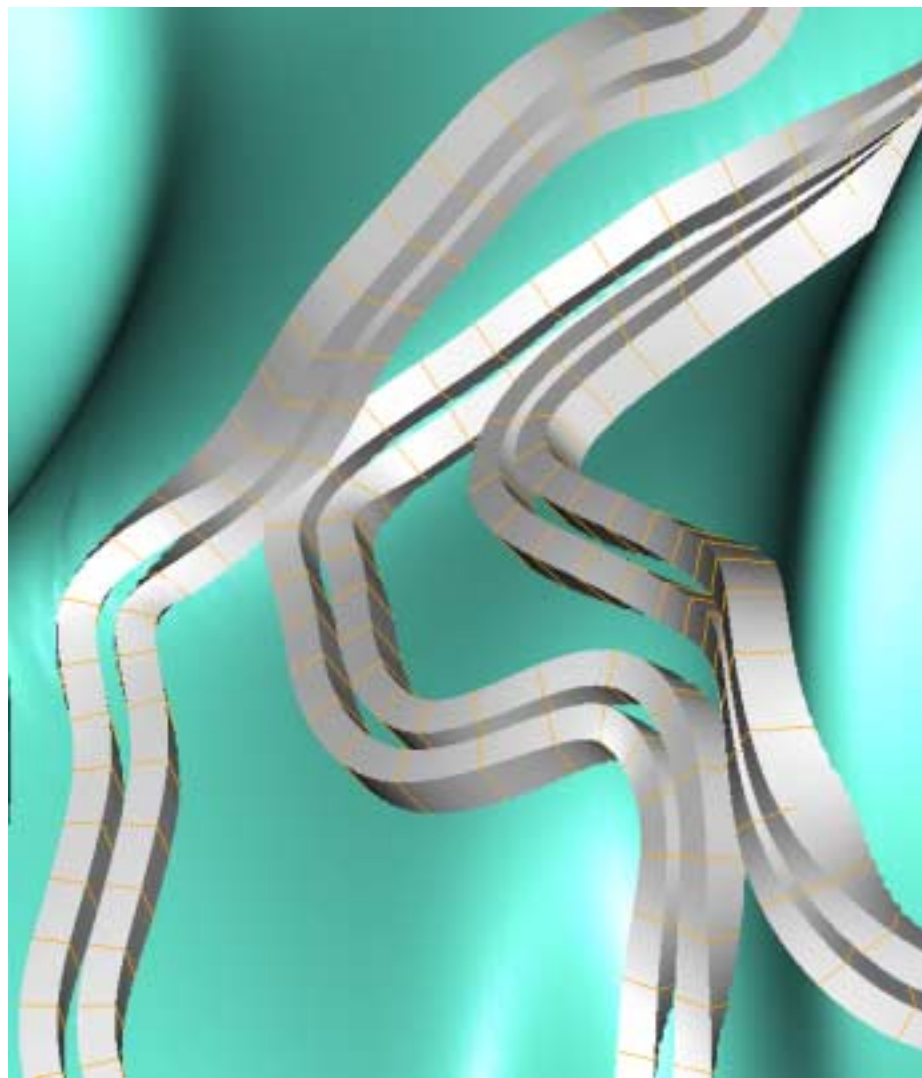


0917b1

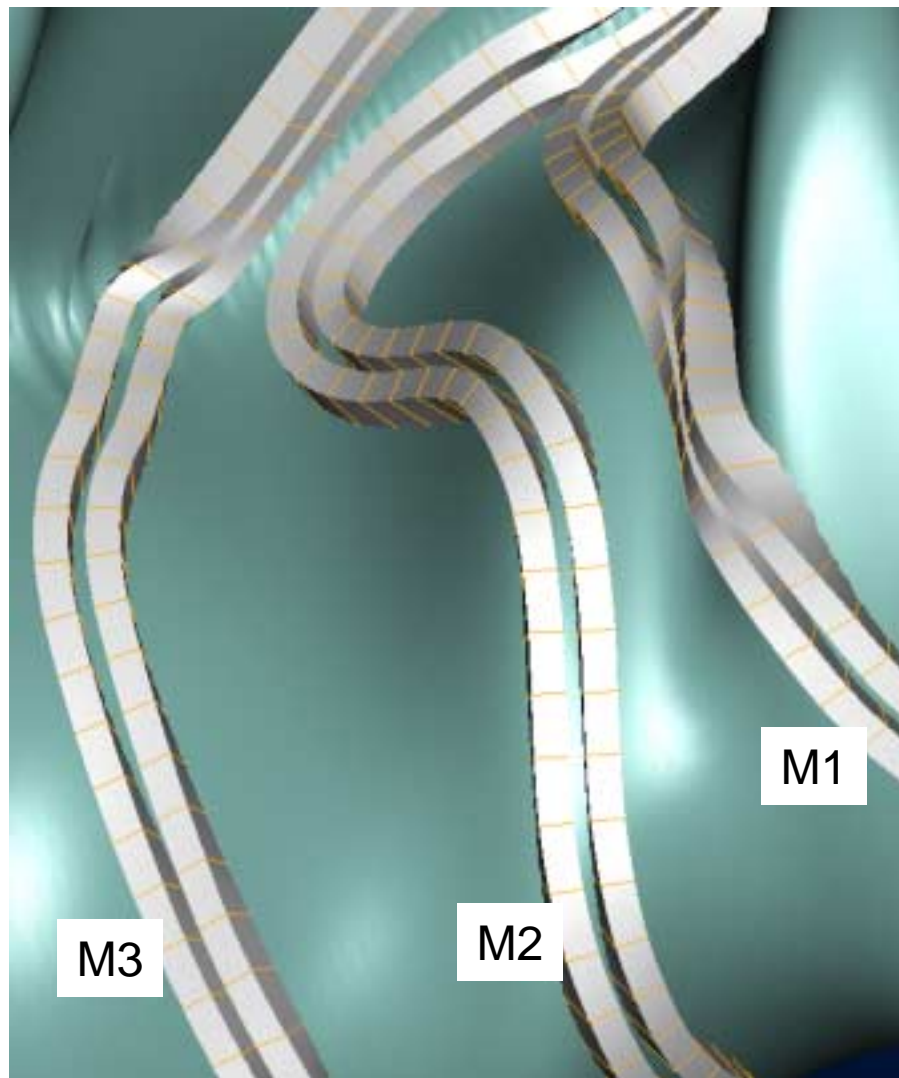


0920b2

Inside looking out at midplane

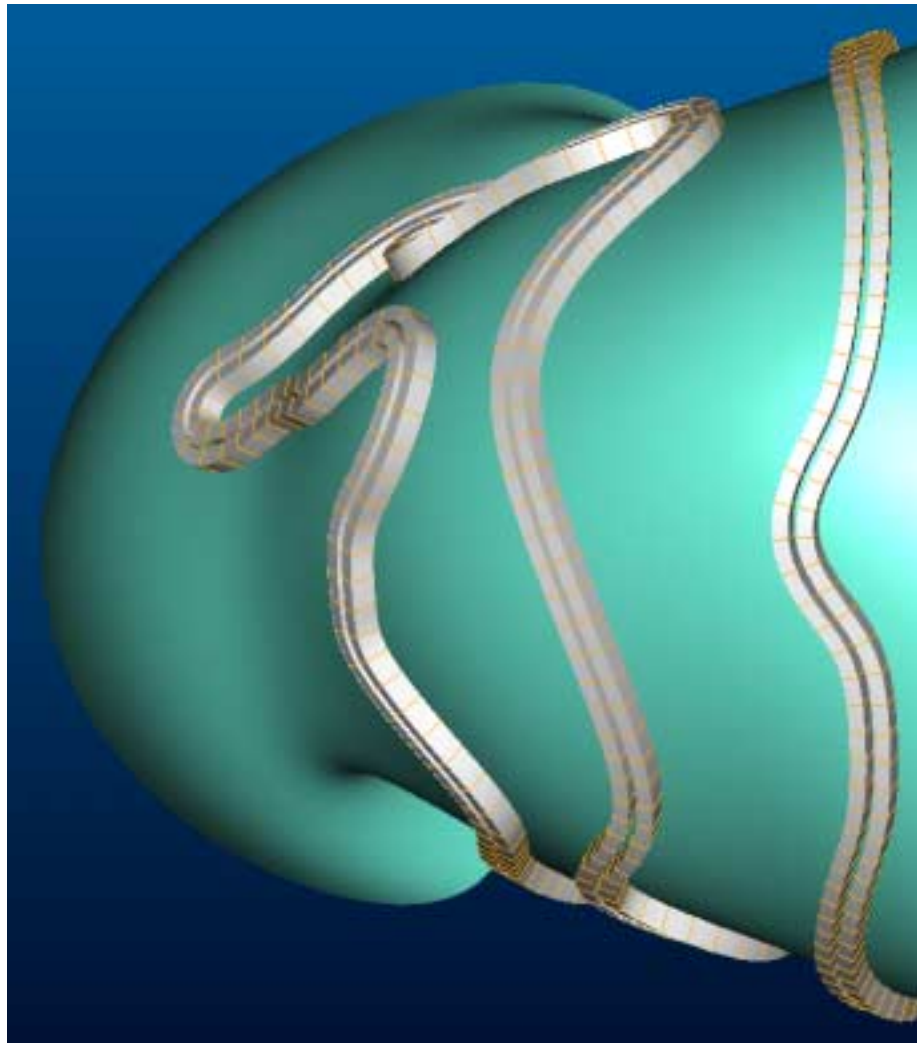


0917b1

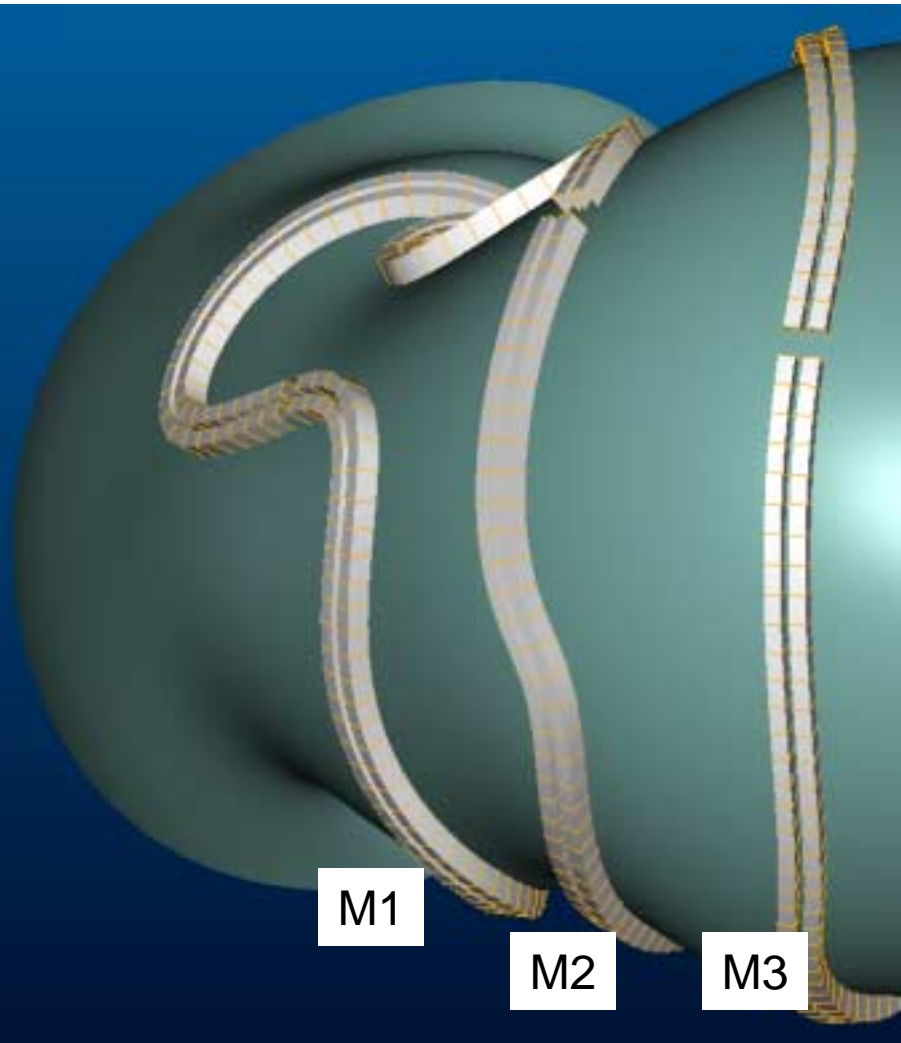


0920b2

Outside looking in at midplane



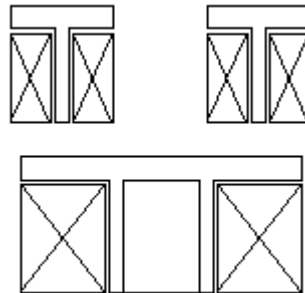
0917b1



0920b2

Modular Coil Options:

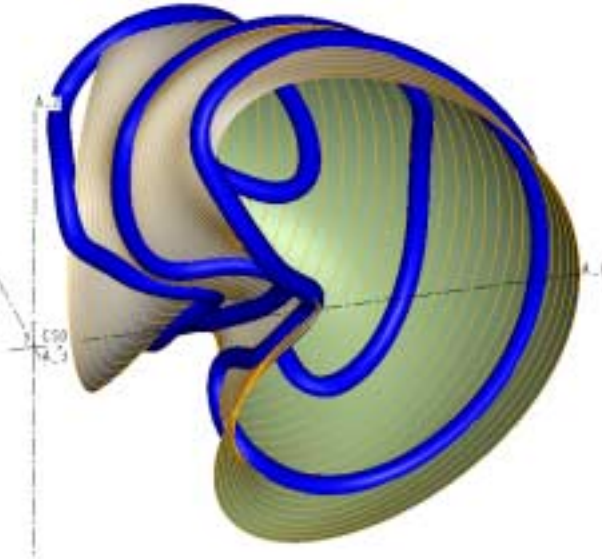
- Modify winding center by
 - 1) manually separating coils in u-v space, put back on original winding surface
 - 2) projecting coils onto a simpler winding surface (needed for structural shell)
- Combine coil structure for coils M1-M1 ($v=0$) and M2-M3



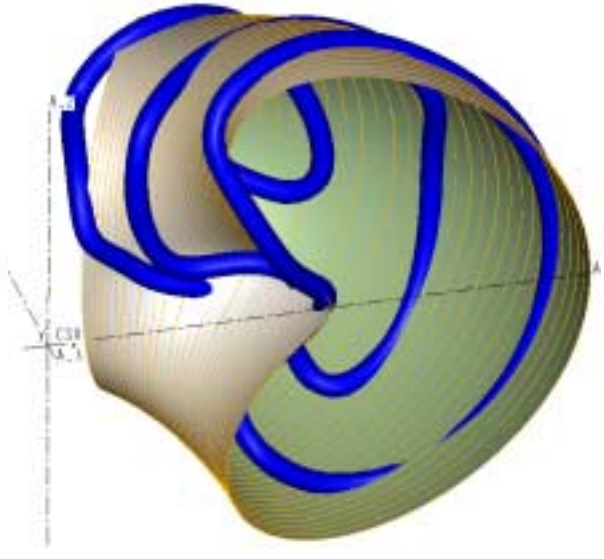
- Put modular coils on outside of shell

Case 0920b2

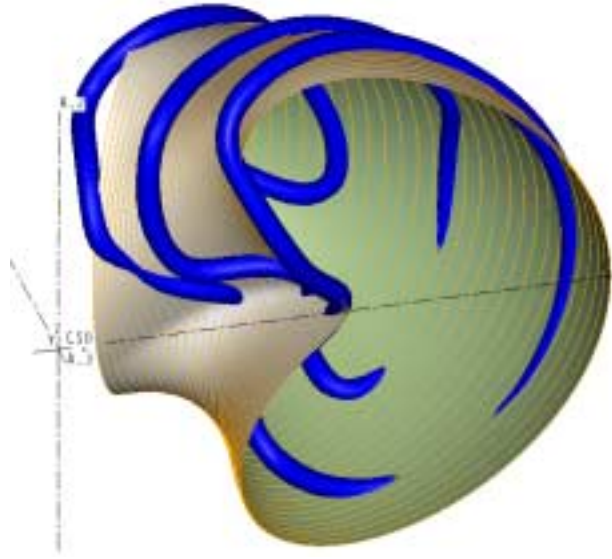
Pseudo-winding surface created by transitioning from $v=0$ to $v=1/2$ profiles



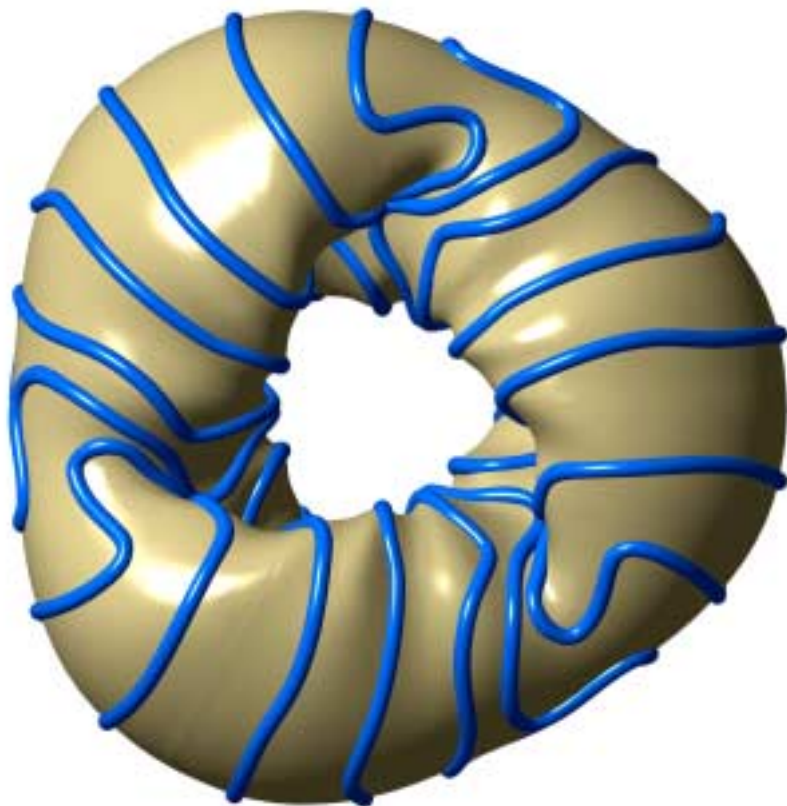
Winding Surface



Transition Surface
(no twist)



Transition Surface
(with twist)



Winding Surface



Transition Surface
(with twist)

Structural shell made by offsetting transition surface

