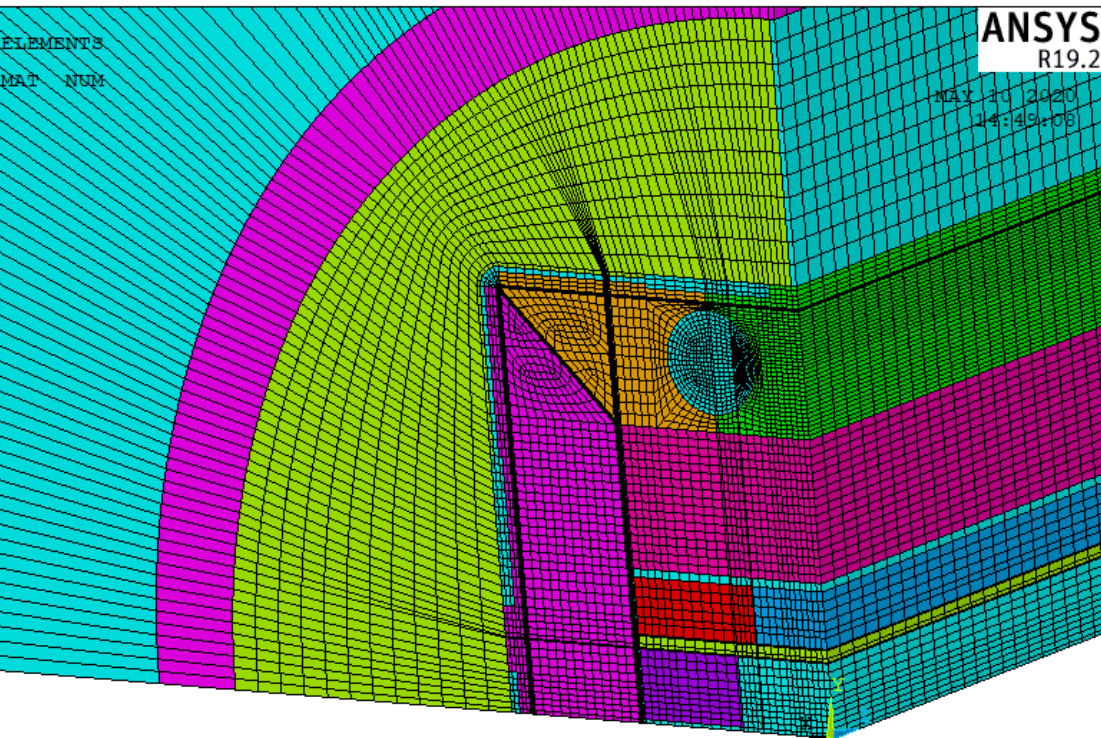


# Eddy currents analysis @ quench (Al shell)

P. Testoni

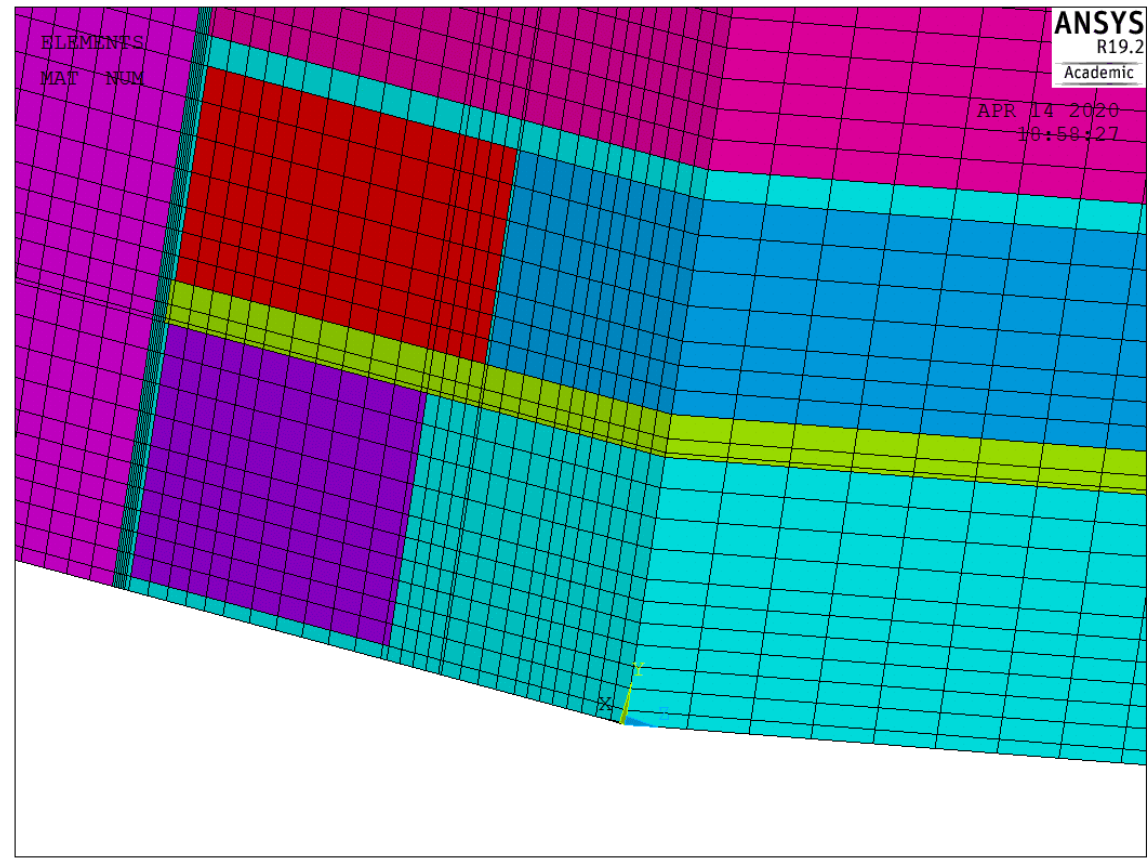
10 May 2020

# Finite element model



Resistivity Ohm m

iron	RSVX	0.5000000E-06
SS	RSVX	0.4960000E-06
Al	RSVX	0.5760000E-08

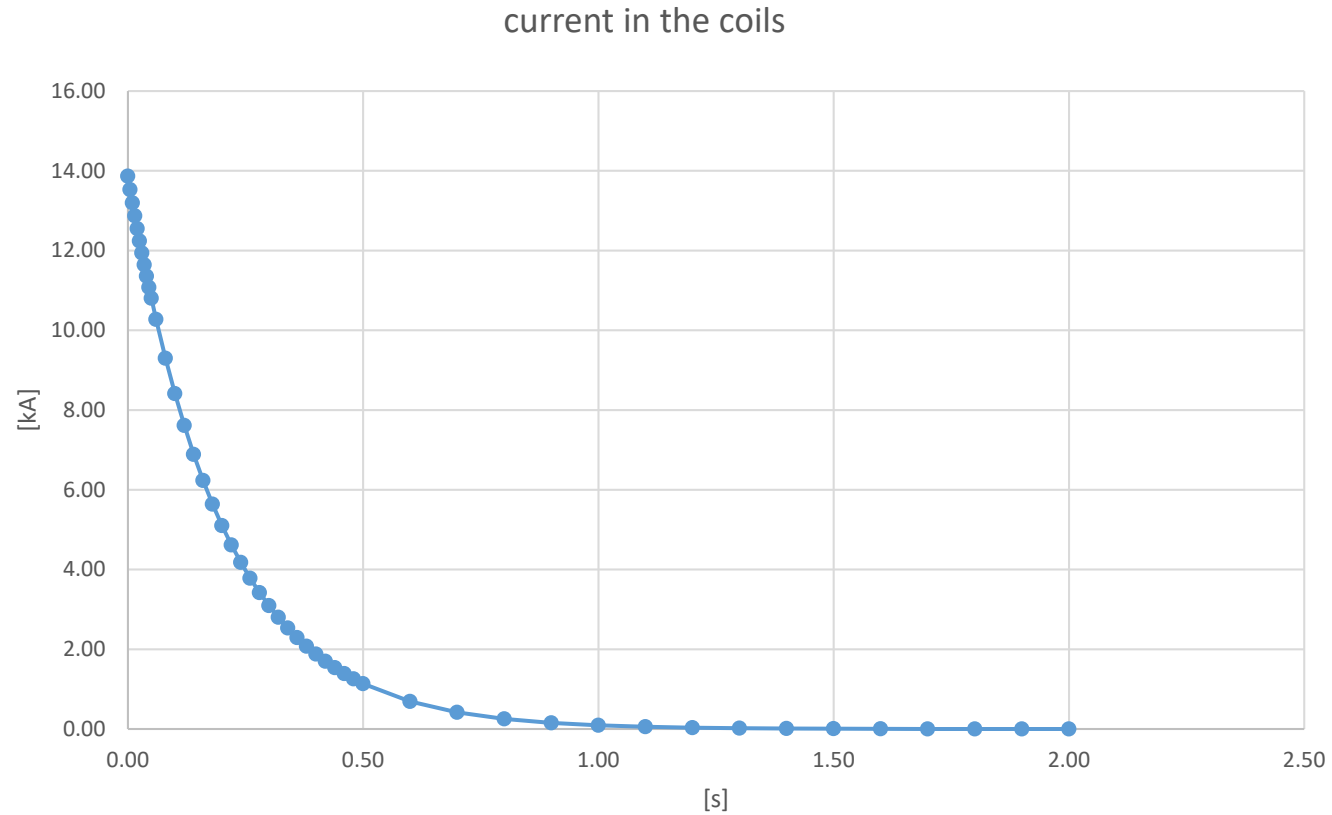


# Formulation

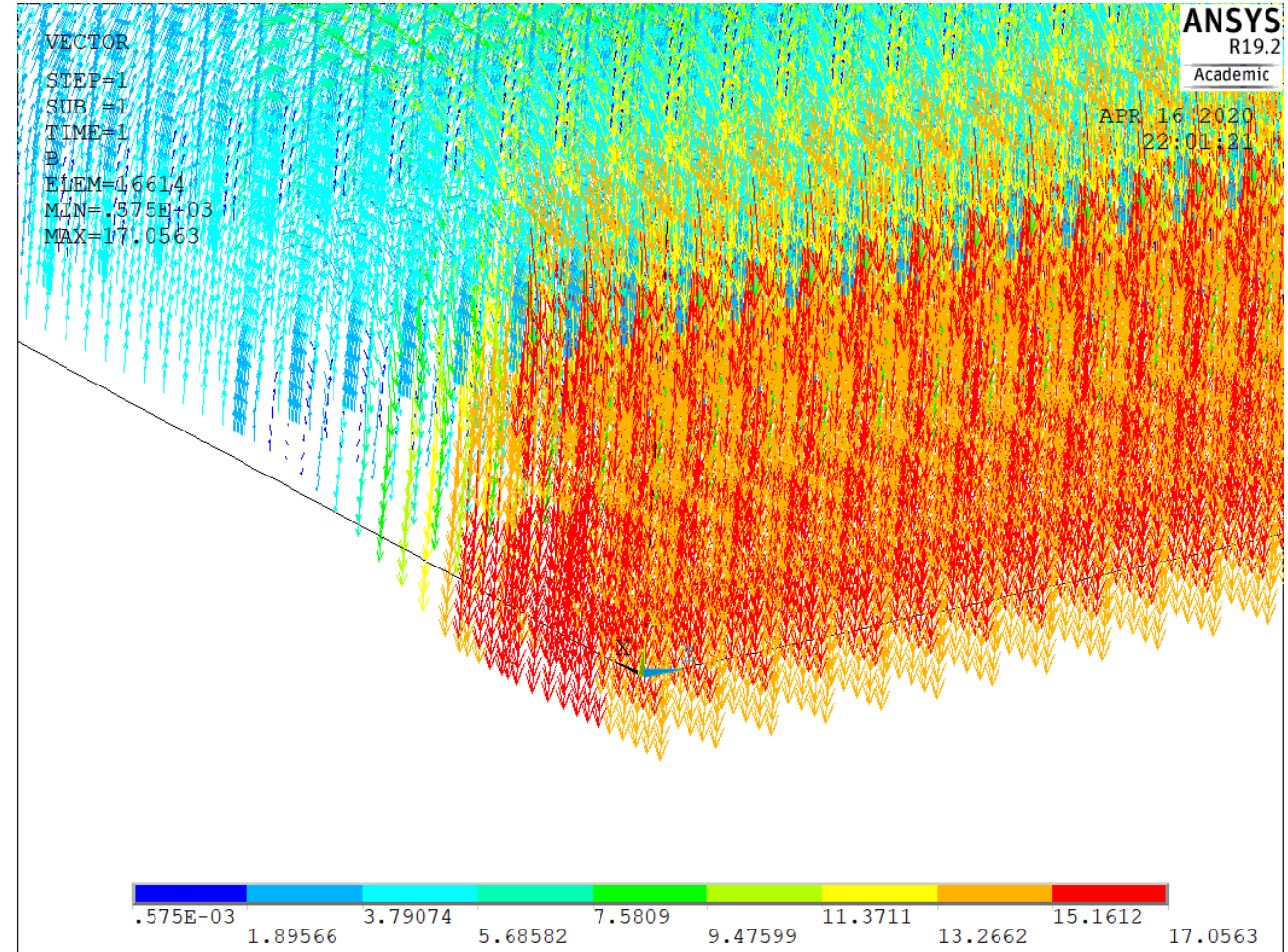
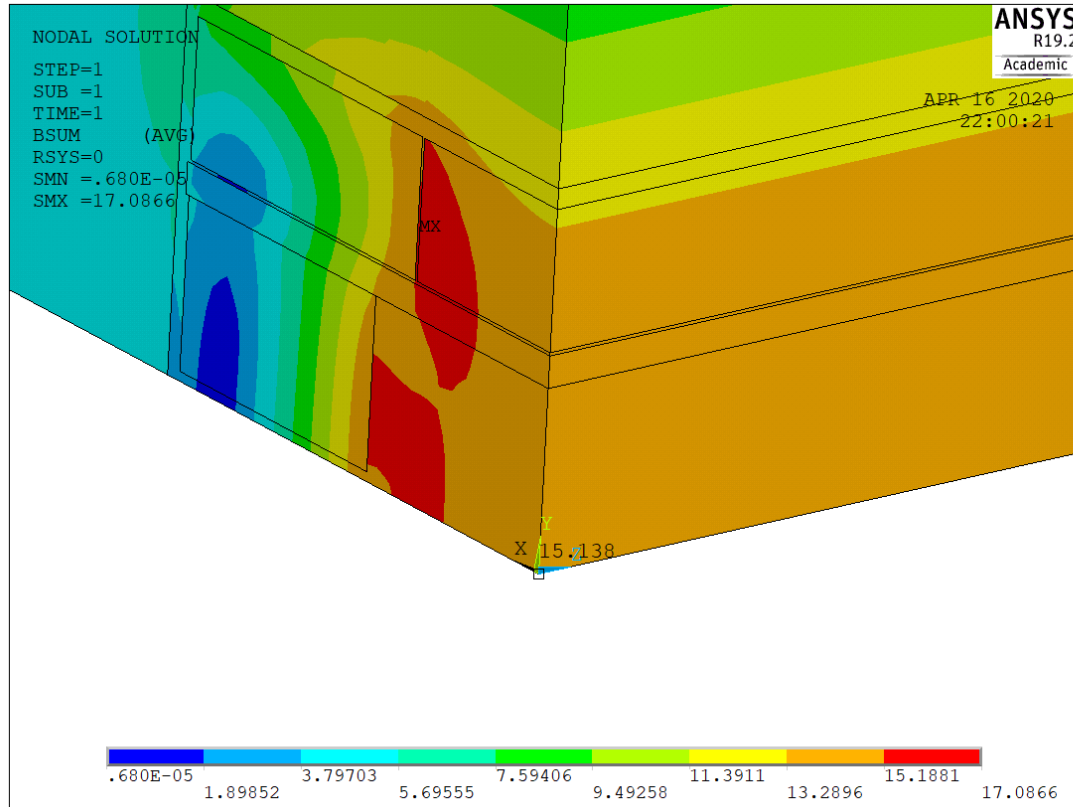
ANSYS element SOLID236 is used. It is an edge element and it allows to appropriately manage eddy current analyses with non linear materials.

# Loading

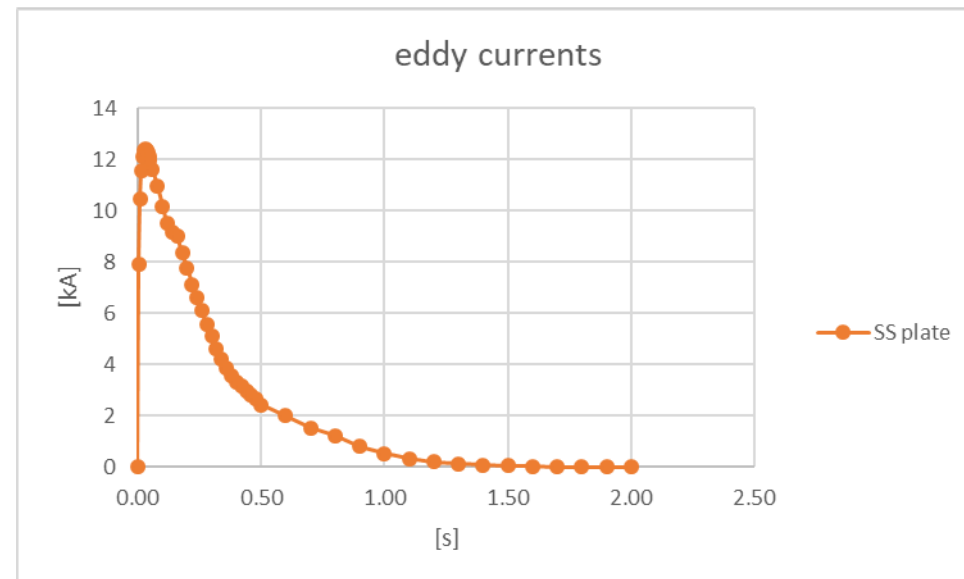
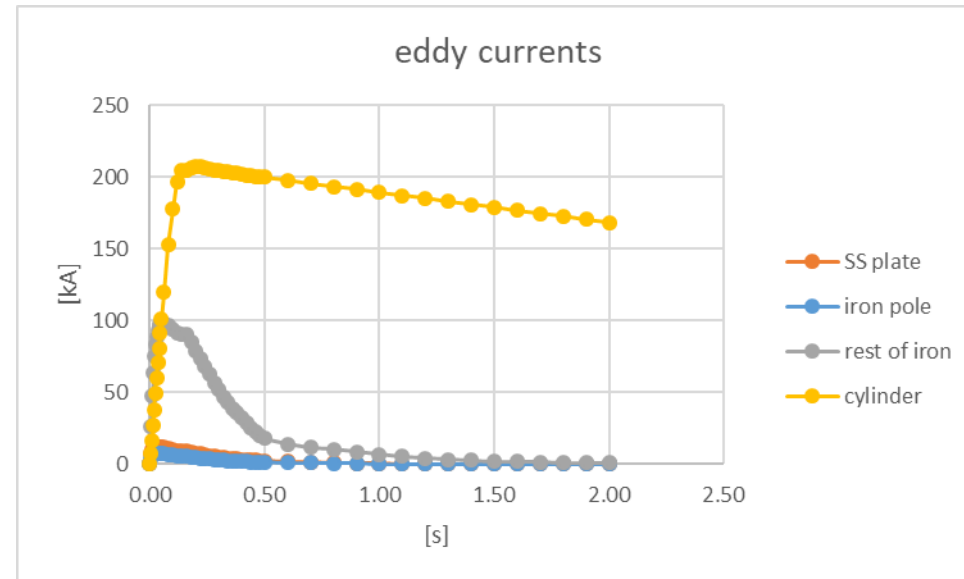
Current in the coils is varied with an exponential law and 0.2s time constant



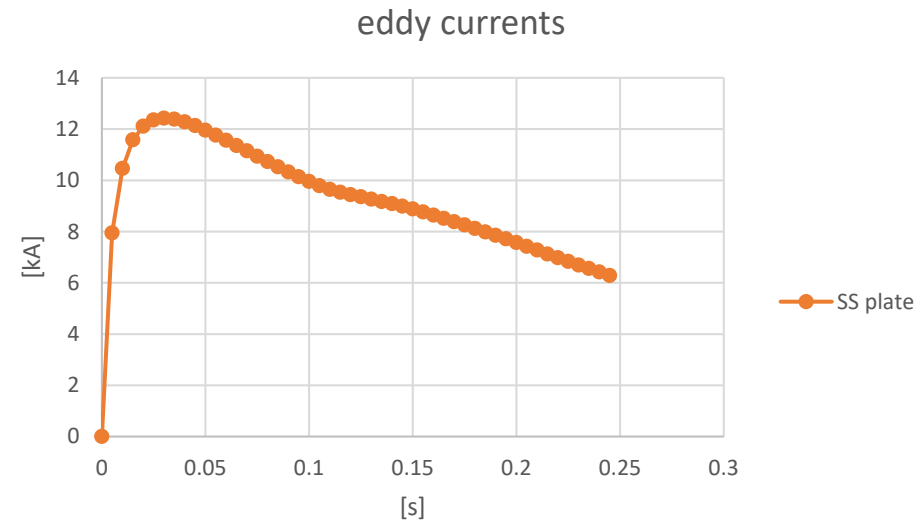
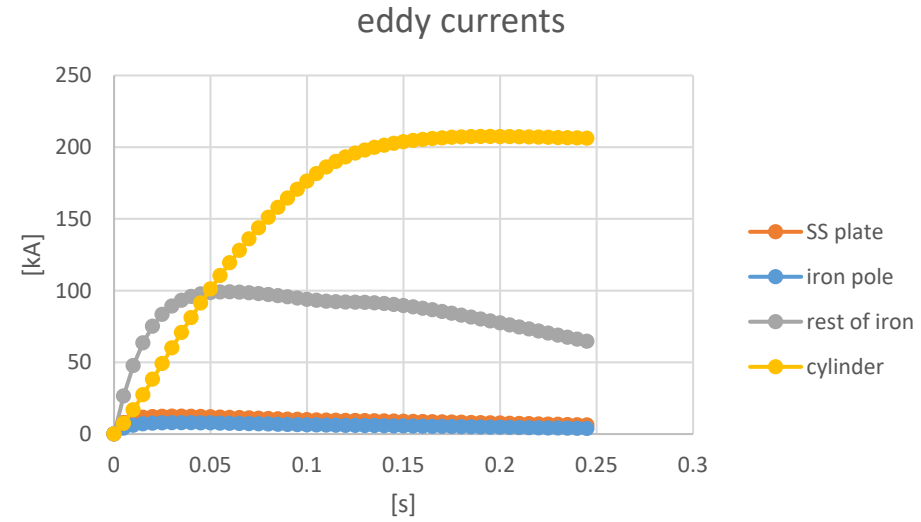
# Initial conditions



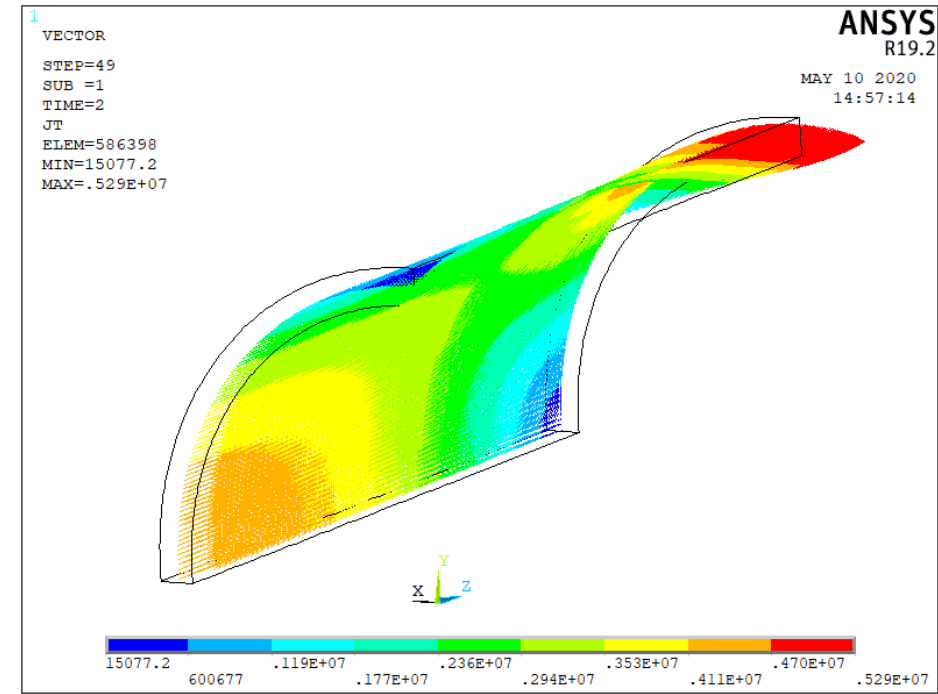
# Evolution of eddy currents in 2 s



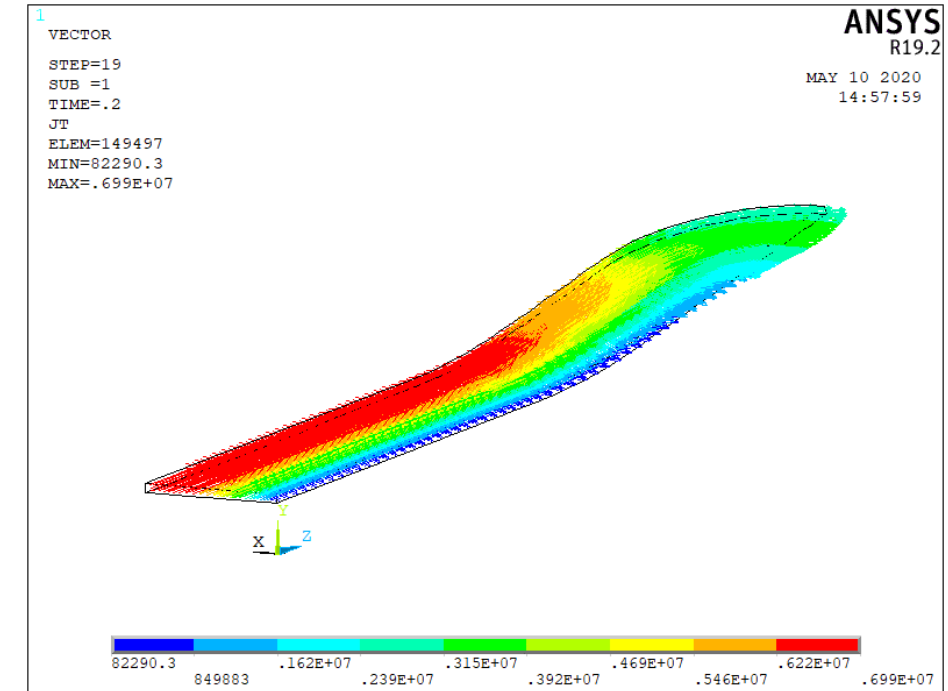
# Evolution of eddy currents in the first 0.25 s



# Eddy currents



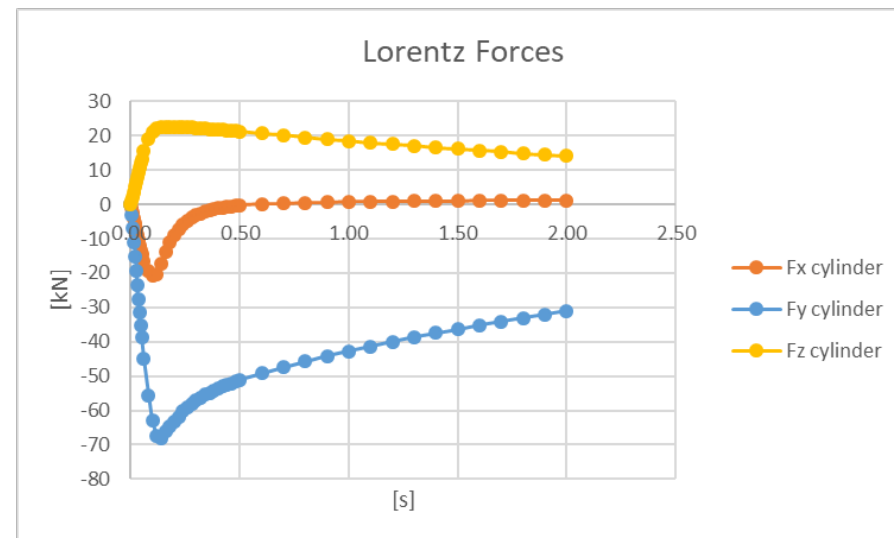
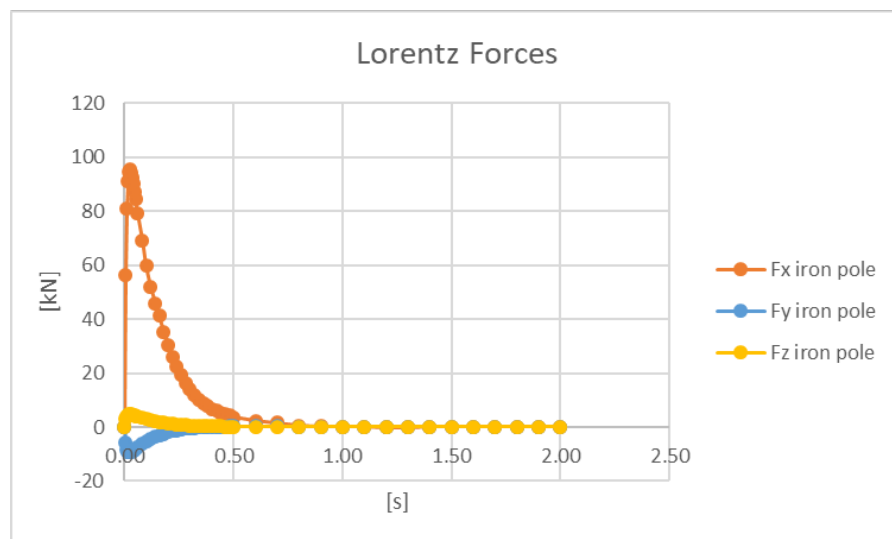
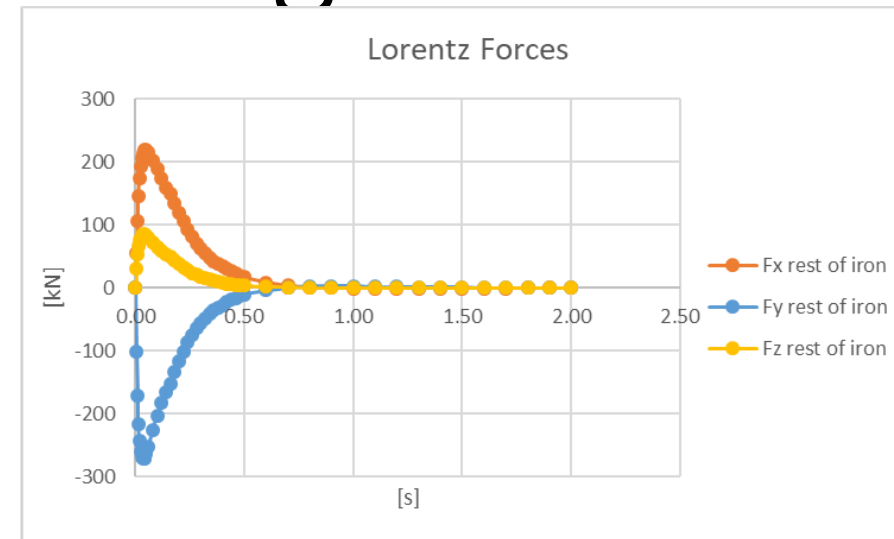
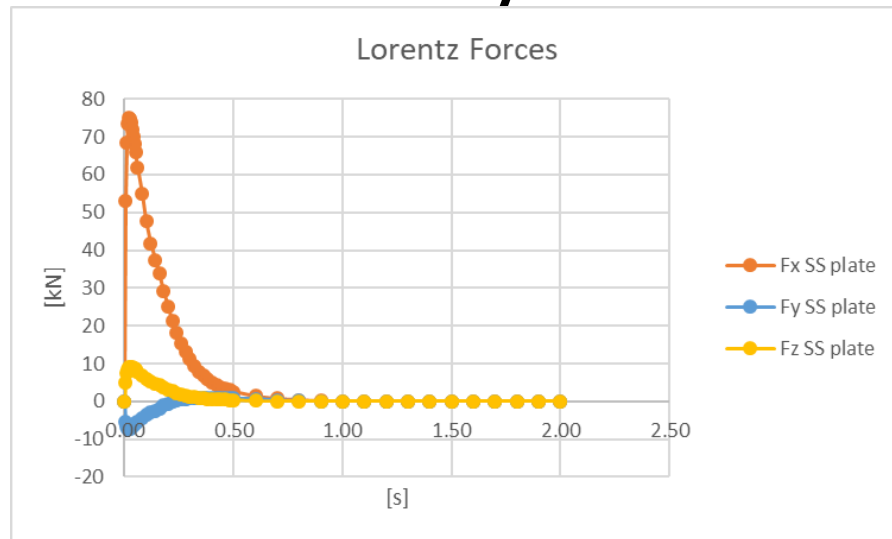
t=2s



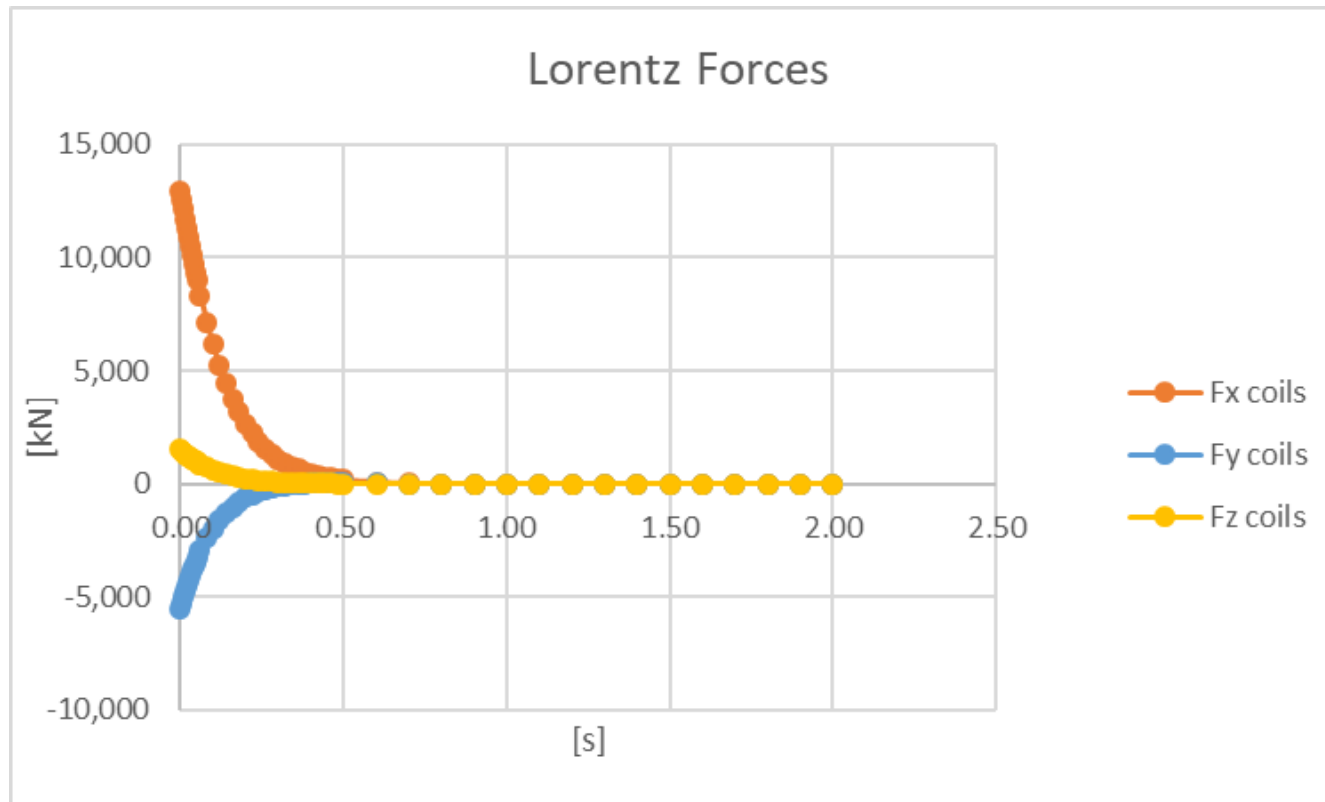
t=0.2s



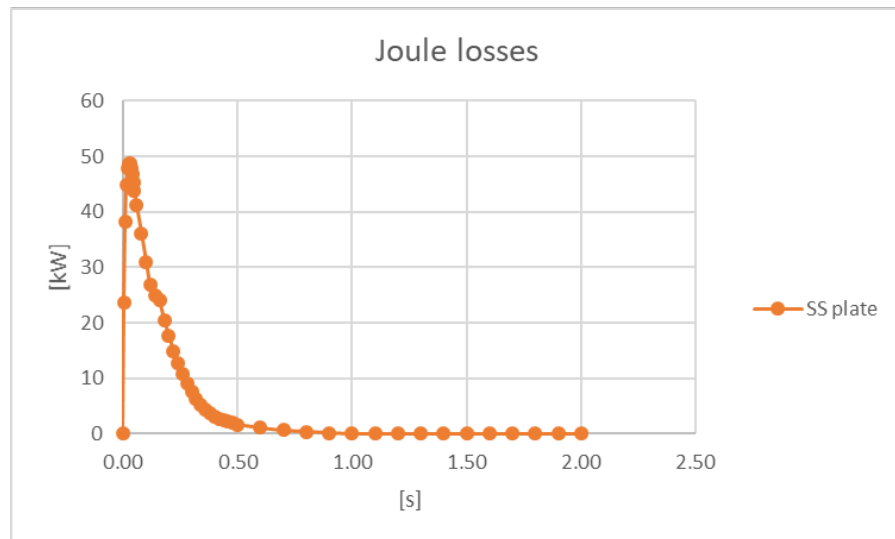
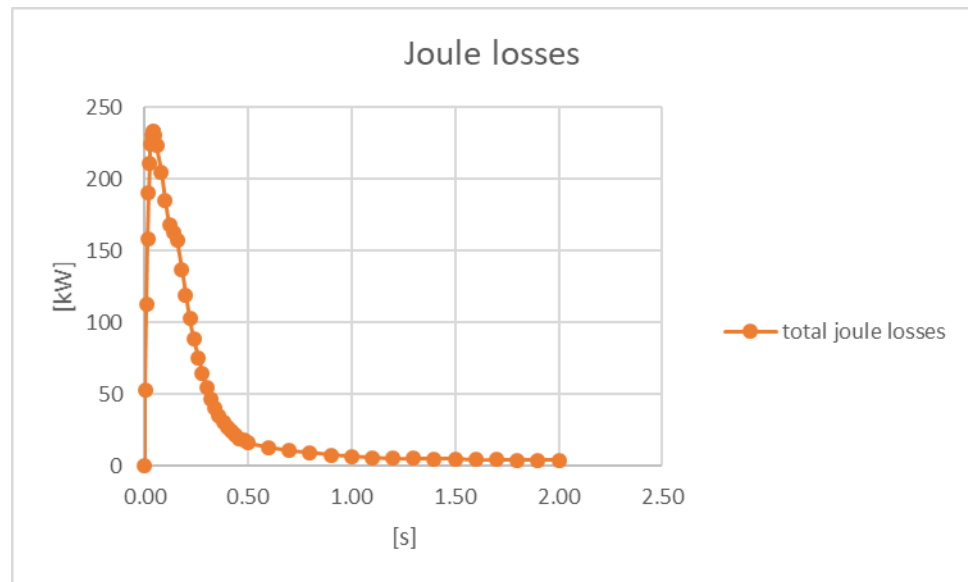
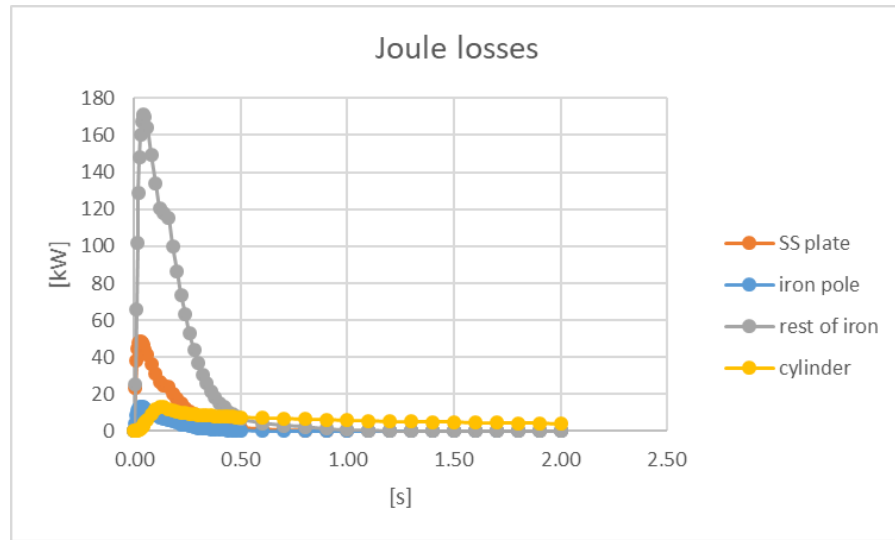
# Evolution of Lorentz forces for 1/8 of the magnet



# Evolution of Lorentz forces for 1/8 of the magnet



# Evolution of power loss for 1/8 of the magnet



- Thank you

# Back up

