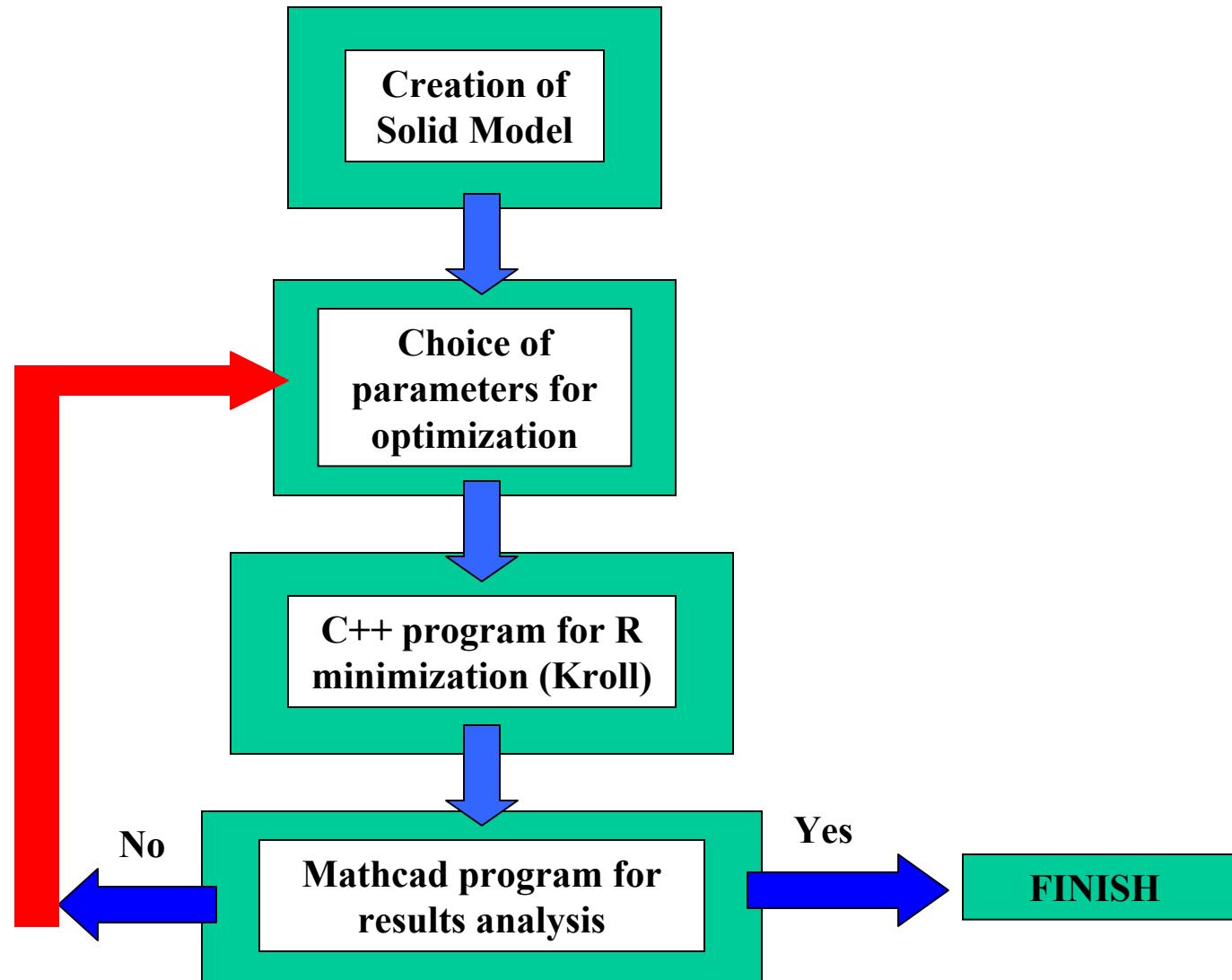


# HFSS simulation of the Input and Output couplers for FXC structure (H75VG4S18)

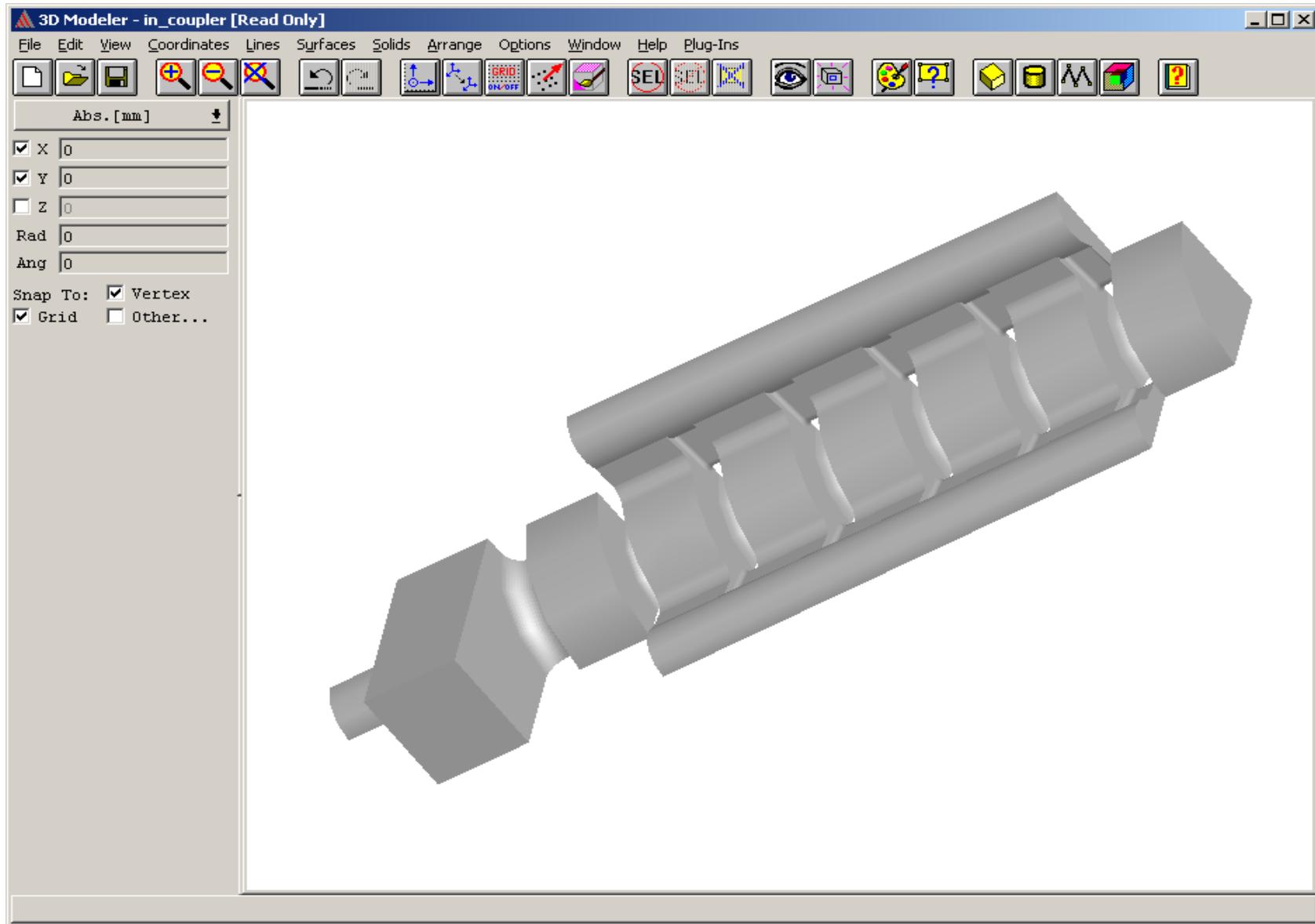
Ivan Gonin, Nikolay Solyak

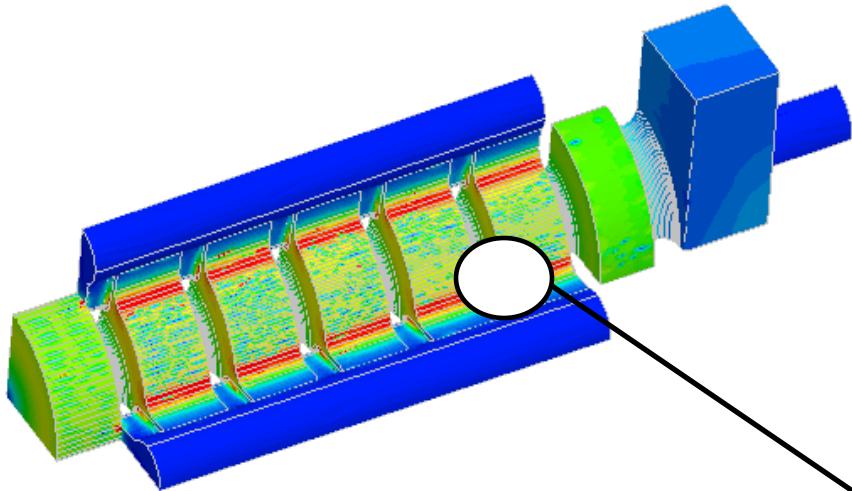
Fermilab

# Procedure of couplers optimization



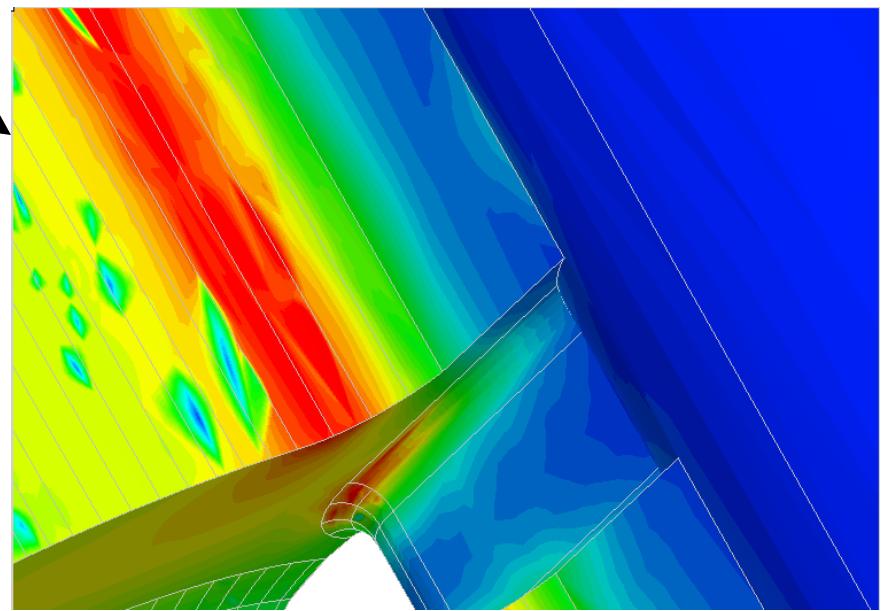
# Solid model of INPUT coupler



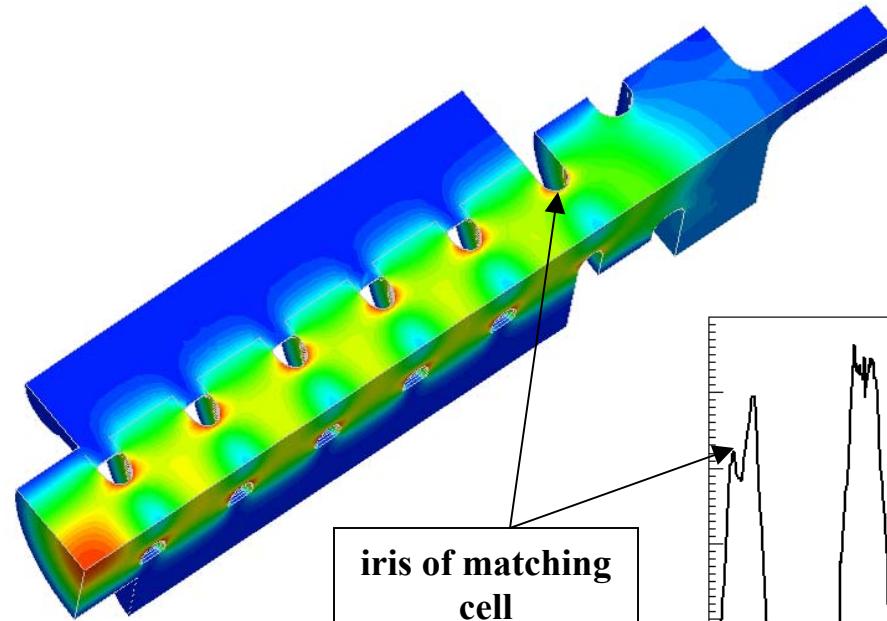


$H \sim 3.05E+5$  A/m

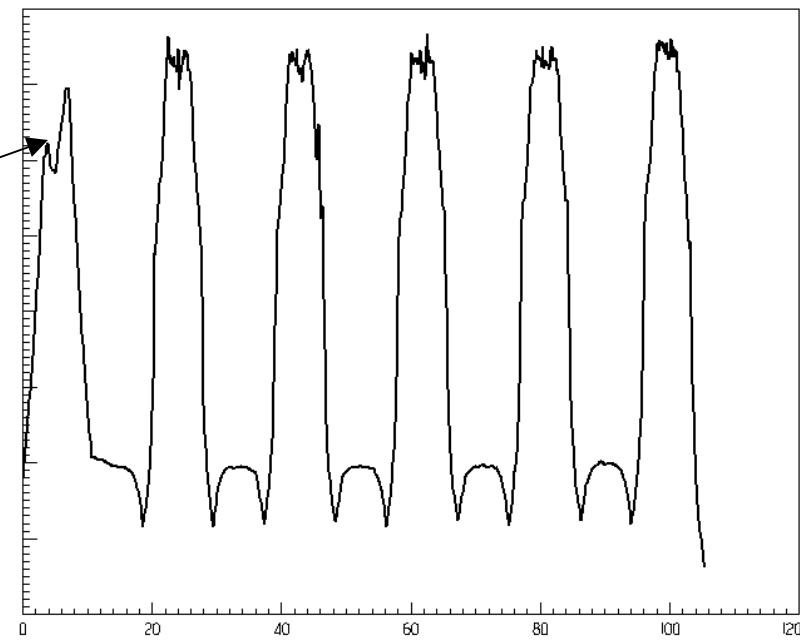
$T \sim 25^\circ$



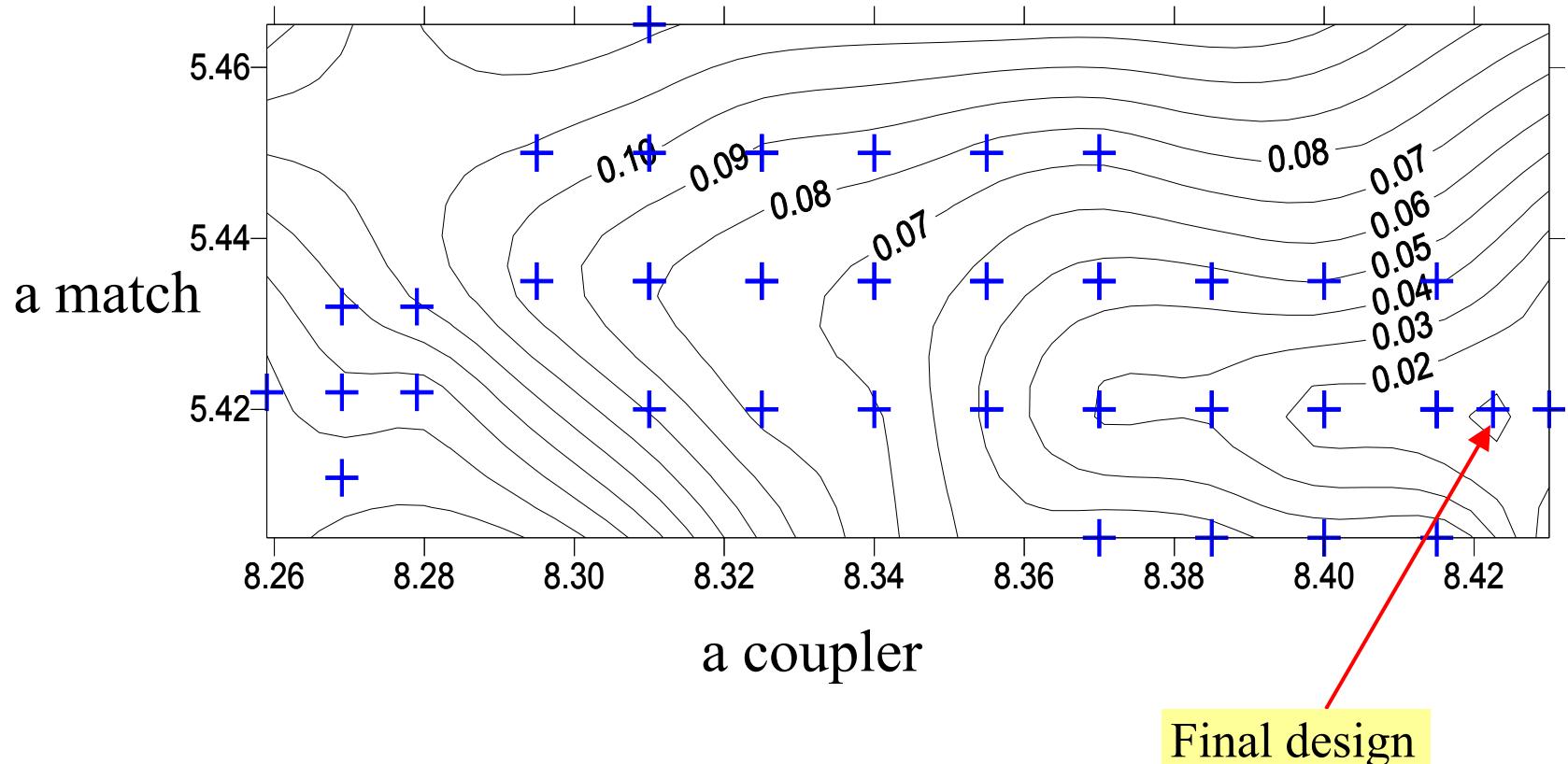
Magnetic field in area of rounding at slot and b



**$E_s \text{ max} \sim 135 \text{MV/m}$**

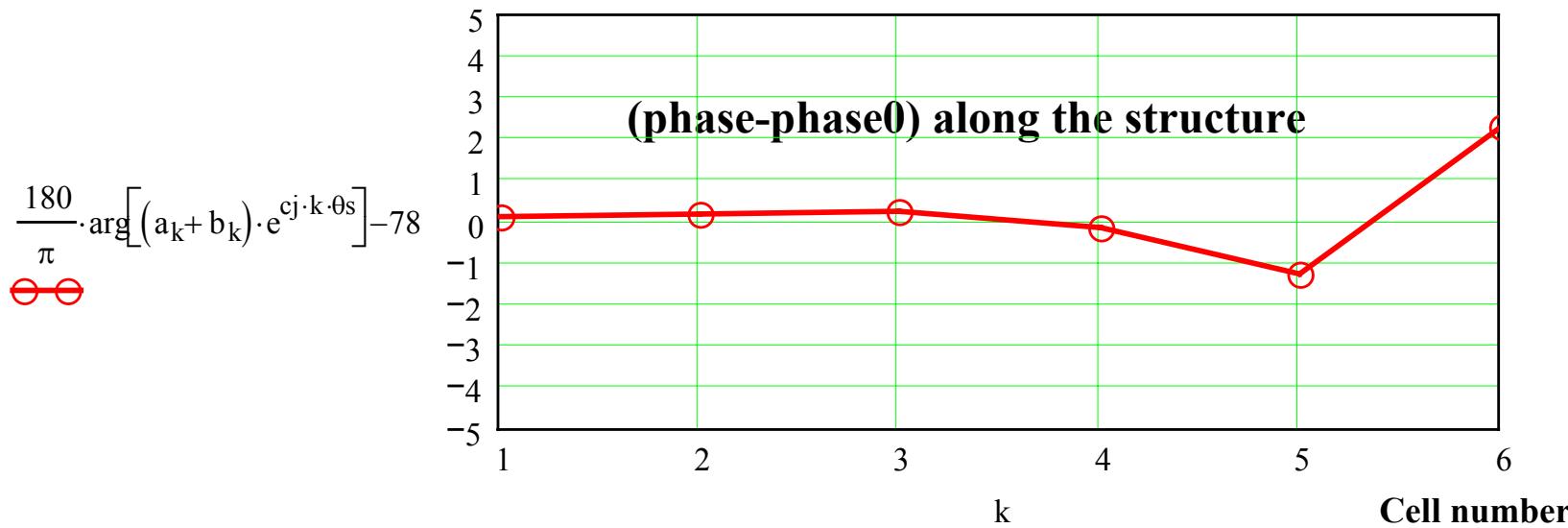
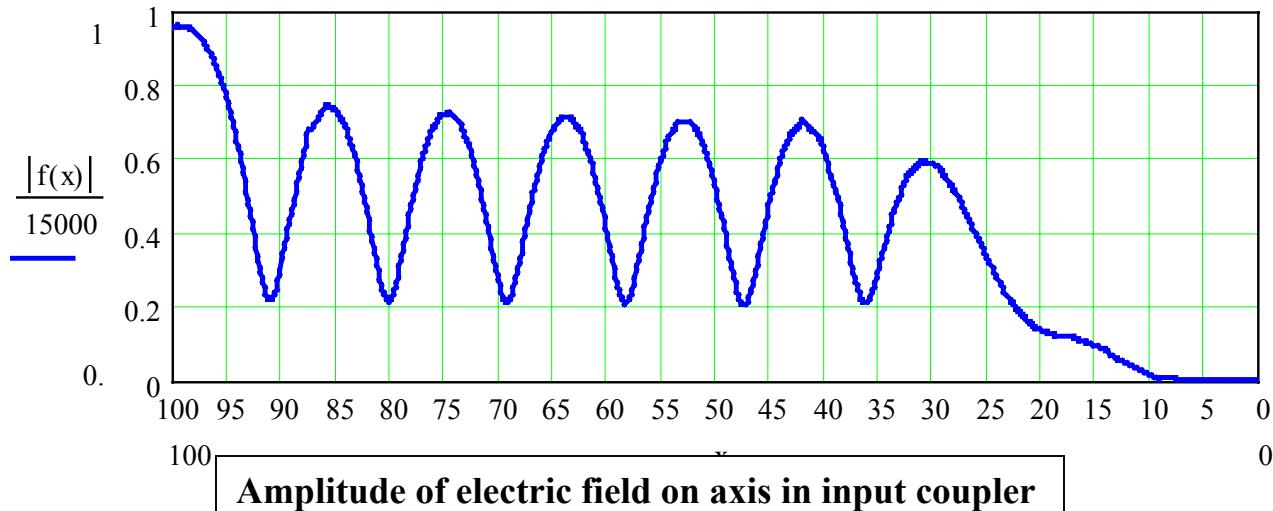


**Electric field in input coupler and on surface**

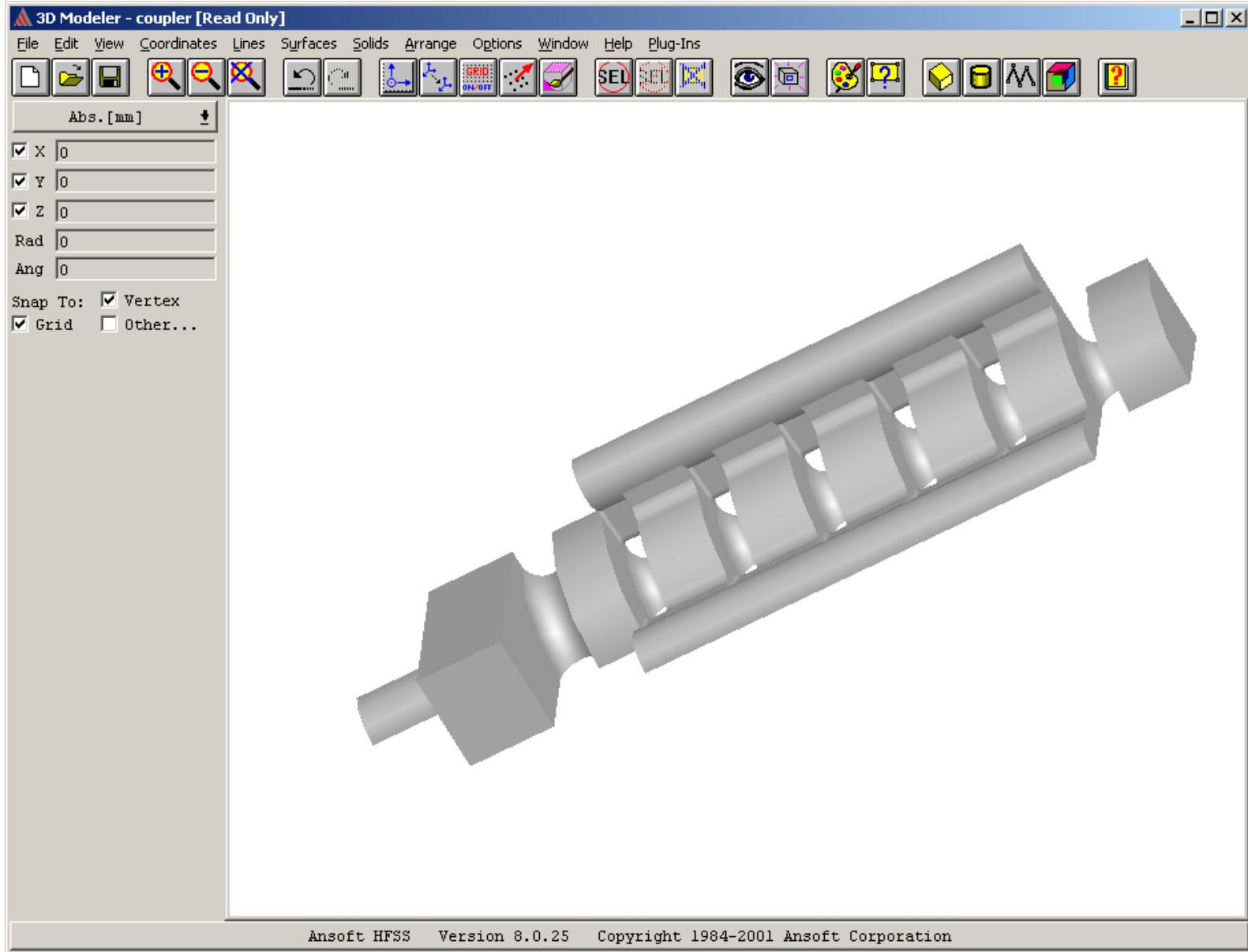


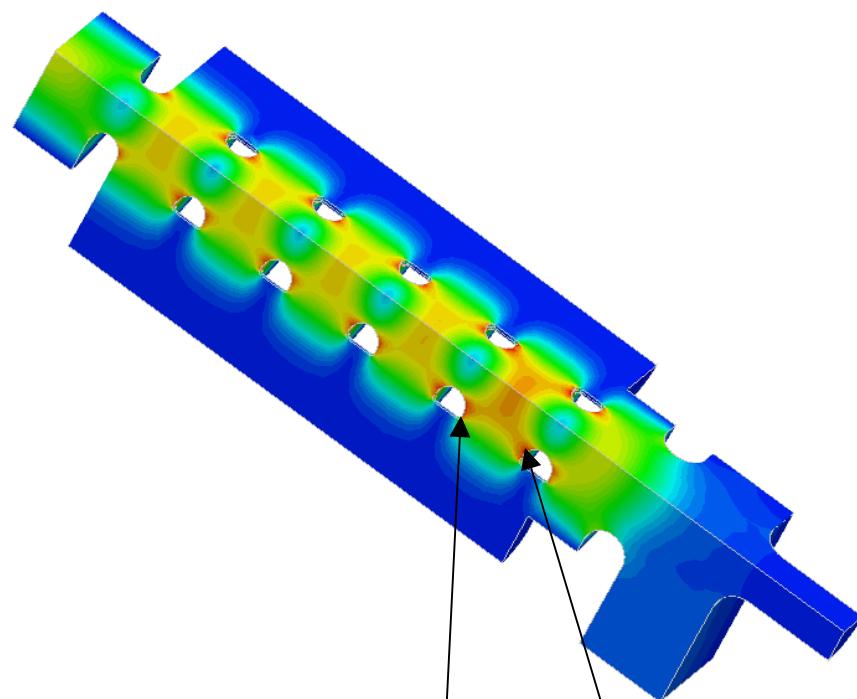
Path of reflection minimization

Average reflection in structure ~0.008, phase0 ~149°

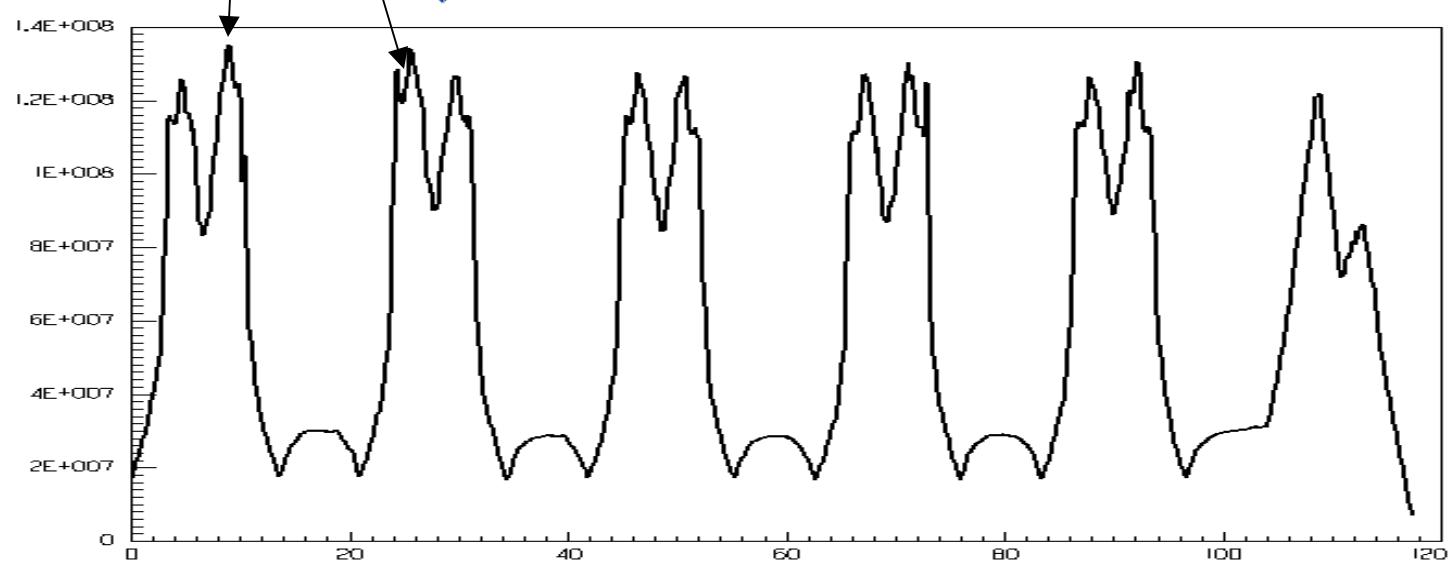


# Solid model of OUTPUT coupler

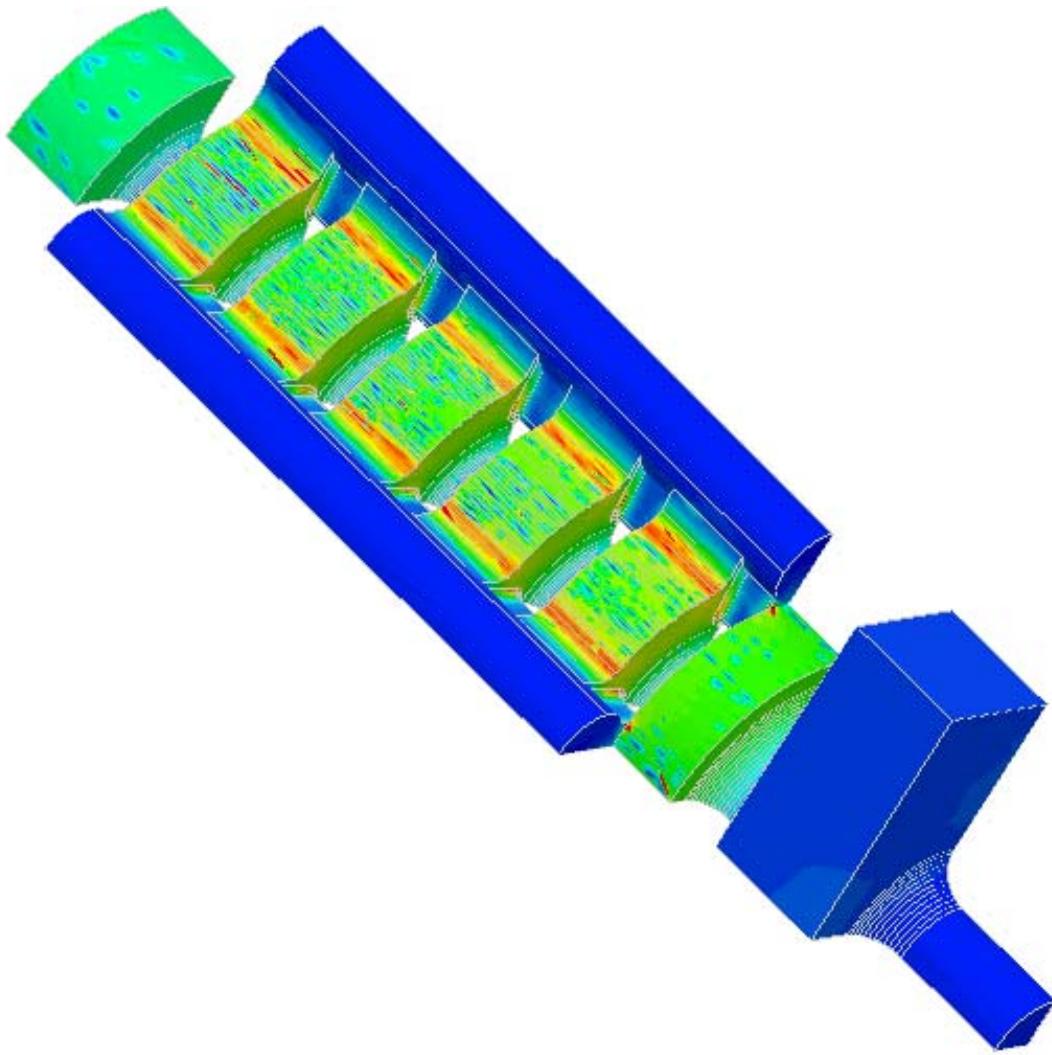




Surface electric field in first cell before output coupler cell is ~5% bigger

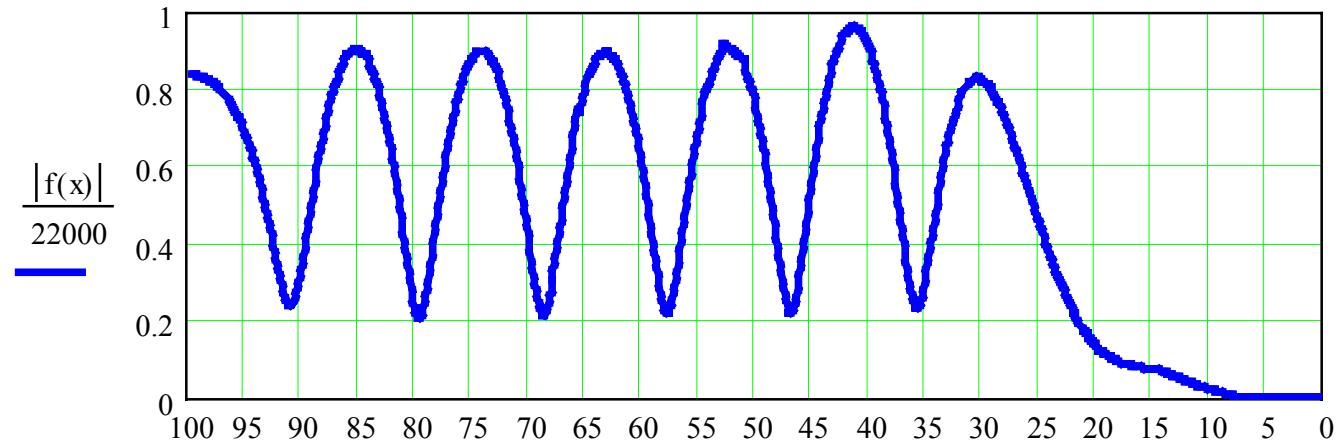


Electric field in output coupler and on surface



**Magnetic field on surface of output coupler,  $H \sim 3.5e5$ ,  $T \sim 32^\circ$**

Average reflection in structure ~0.02, phase0 ~148°



Amplitude of electric field on axis in output coupler

