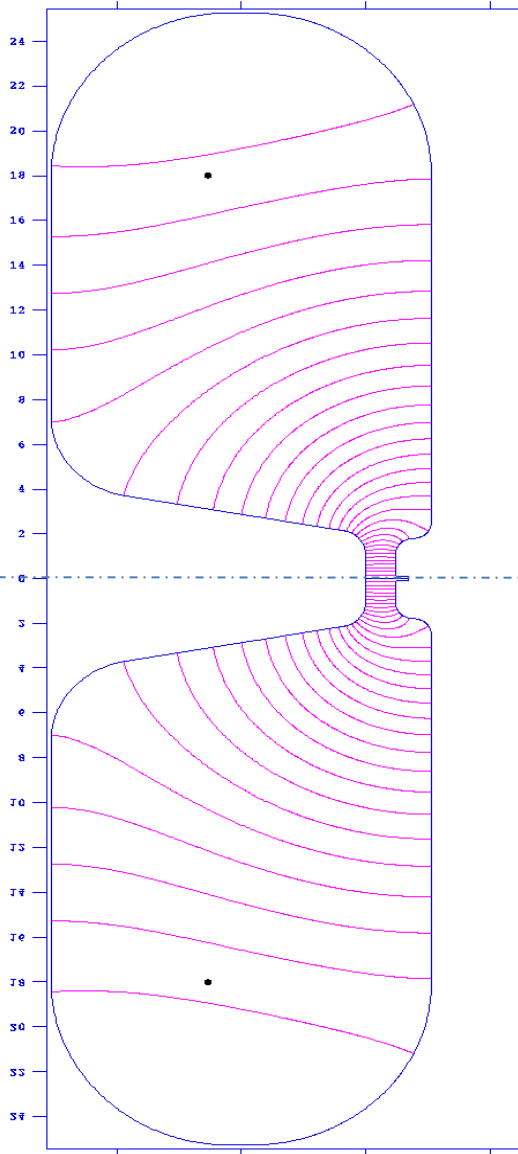


RF STRUCTURES FOR X-RAY FREE ELECTRON LASER AT FREIA

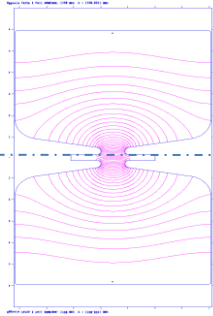
Anatoliy Opanasenko, NSC/KIPT

Vitaliy Goryashko, UU/FREIA

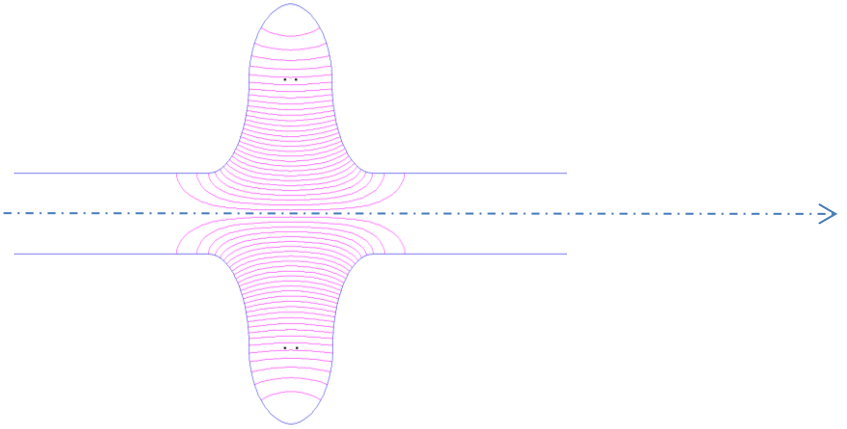
RT RF PHOTO GUN 325 MHz



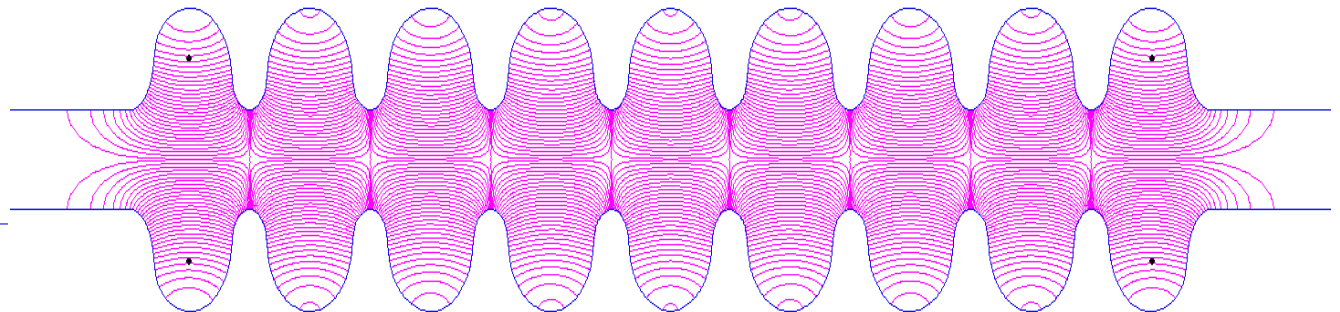
RT BUNCHER 1300 MHz



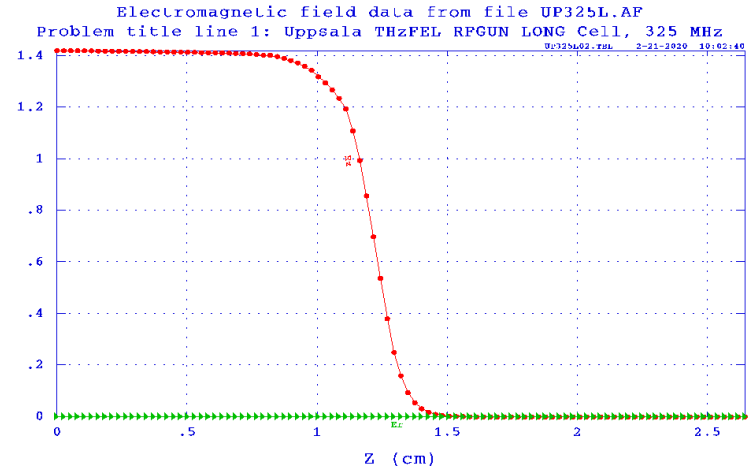
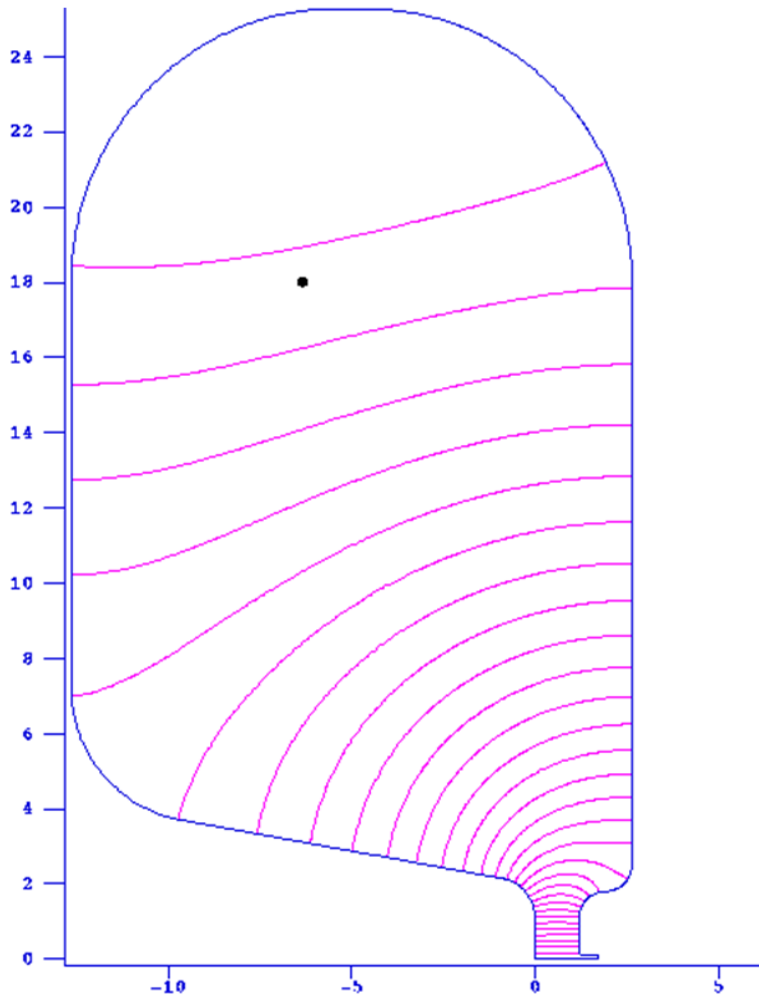
SC 1 CELL BOOSTER 1300 MHz



SC 9 CELLS CAVITY 1300 MHz

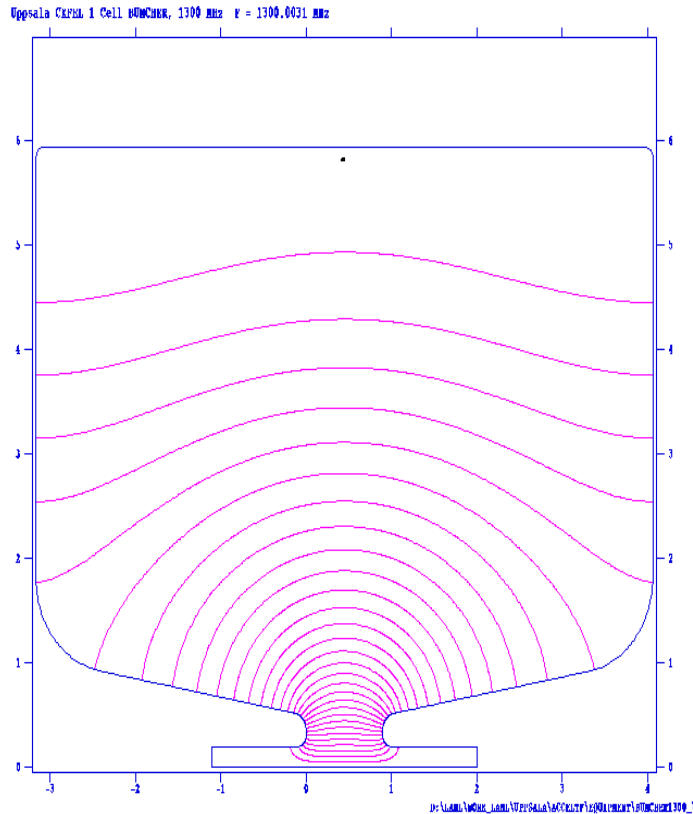


RF Photo Gun 325 MHz Cavity, ROOM TEMPERATURE

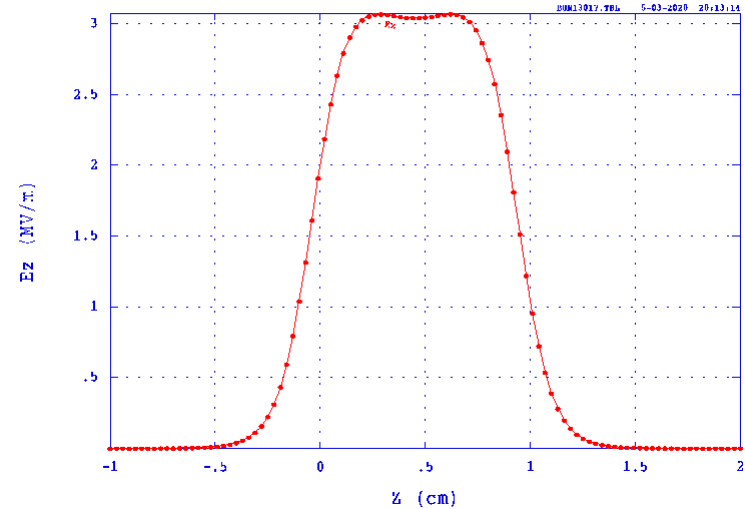


PARAMETERS	VALUE
Quality, Q_0	34646.5
Shunt Impedance, Z_{sh}	483 M Ω /m
Electric field at Cathode	35 MV/m
Stored energy	0.364 J
Power Dissipation, P_{diss}	21.4 kW
Energy Gain, V_{acc}	419 keV
Max. Power Density on Wall	48 W/cm ²

BUNCHER 1300 MHz ROOM TEMPERATURE

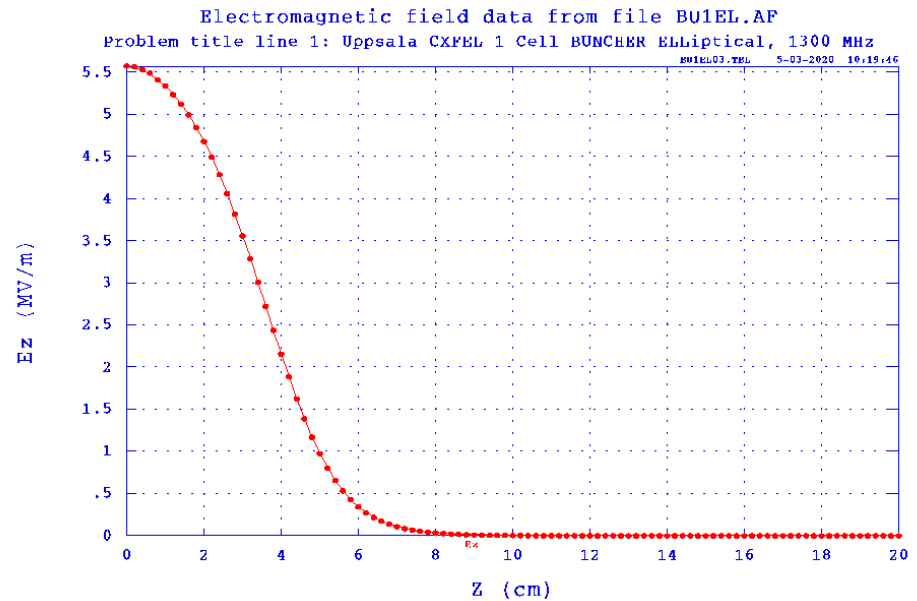
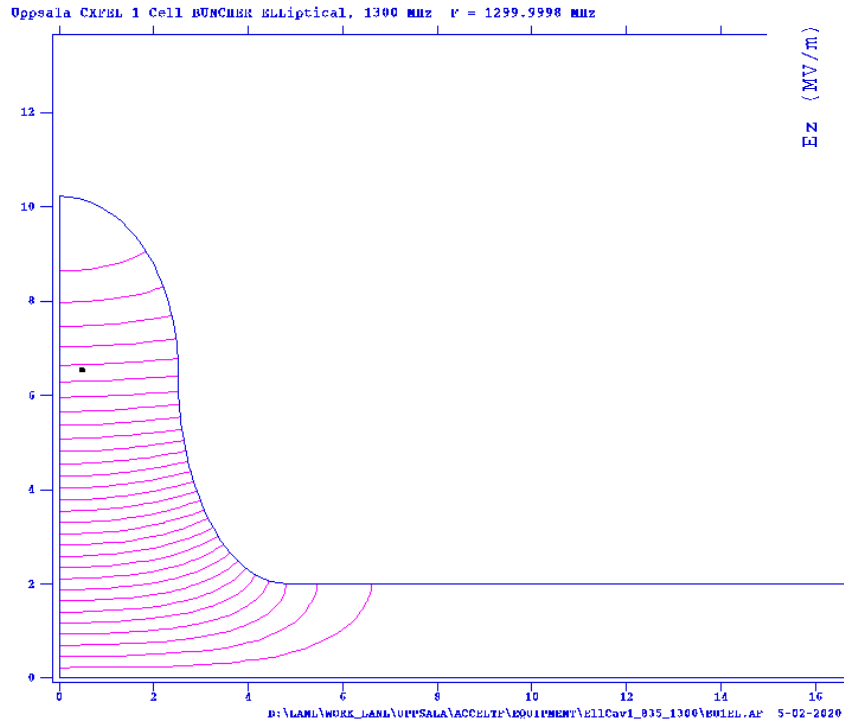


Electromagnetic field data from file BUN1300_AF
 Problem title line 1: Uppsala CXFEL 1 Cell BUNCHER, 1300 MHz



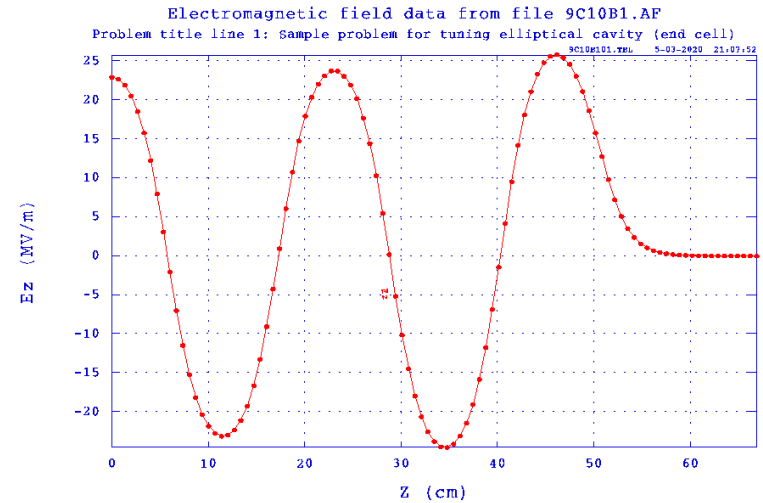
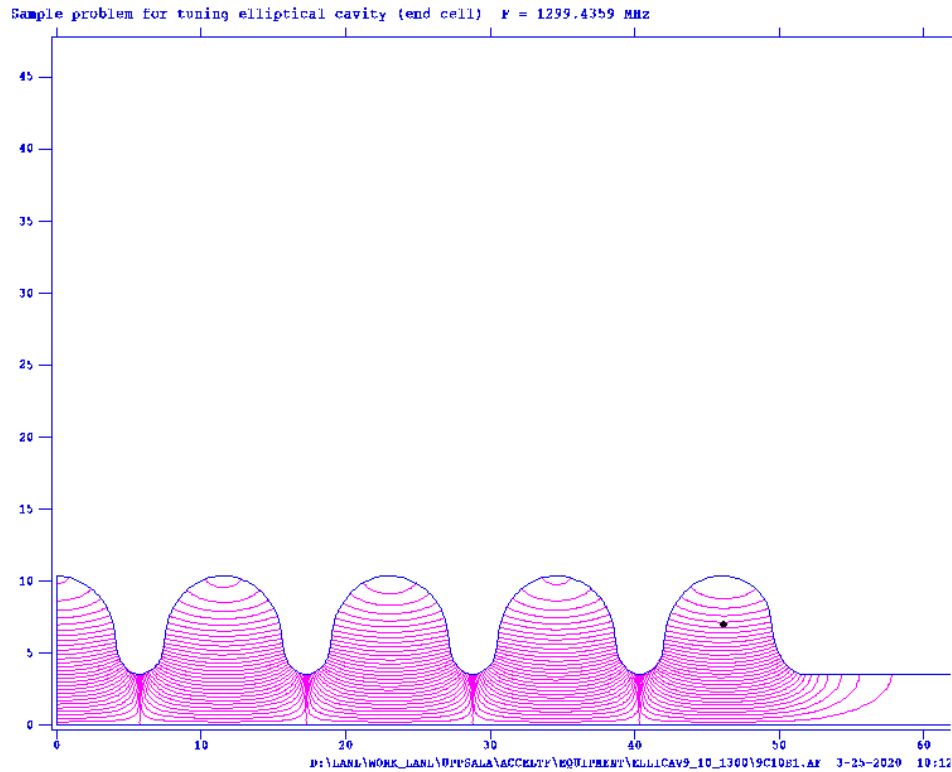
PARAMETERS	VALUE
Quality, Q_0	19664.8
Shunt Impedance, Z_{sh}	280 M Ω /m
Max Electric field in Gap	9.7 MV/m
Stored energy	2.8 mJ
Power Dissipation, P_{diss}	1.1 kW
Energy Gain, V_{acc}	100 keV
Max. Power Density on Wall	24 W/cm ²

SC BOOSTER 1300 MHz



PARAMETERS	VALUE
Quality, Q_0	6.8813E+09
r/Q_0	52 Ω
Max Electric field on axis	20 MV/m
Stored energy	72 mJ
Power Dissipation, P_{diss}	0.8 W
Energy Gain, V_{acc}	2.5 MeV
Max. Power Density on Wall	2.3 mW/cm ²

SC 9 CELL TESLA CAVITY 1300 MHz



PARAMETERS	VALUE
Quality, Q_0	1.3293E+10
r/Q_0	510 Ω
Electric field on crest	10 MV/m
Stored energy	1.2 J
Power Dissipation, P_{diss}	6.3 W
Energy Gain, V_{acc}	10 MeV
Max. Power Density on Wall	0.36 mW/cm ²