

Center of circle for bending solenoid placement	$z, x$	40 cm, 30 cm
Radius of circle for bending solenoid placement	$R_{\text{bend,sol}}$	29.56 cm
Injection angle	$\varphi_{\text{inj}}$	$70^\circ$
z-axis crossing of straight line from injection	$z_{\text{inj}}$	64 cm
Distance between gun and transfer solenoid	$d_{\text{gun,transfer}}$	7.5 cm

Figure 1: Geometric parameters of the initial electron lens bend design.

Solenoid	$R_i$ [cm]	$R_o$ [cm]	$B$ [mT]	$j$ [A/mm <sup>2</sup> ]	$\Theta$ [°]	Center [m]
Gun	12.5	23.7	100	1.11	70	(0.517, 0.828)
Transfer	3.5	7.5	100	2.27	70	$r_{\text{trans}} = (0.2114, 0.717)$
Bend 1	9.65	13.65	53.9	6.28	43	$r_{\text{bend},1} = (0.02692, 0.682)$
Bend 2	6.33	10.33	74.9	6.28	33.5	$r_{\text{bend},2} = (0.0118, 0.615)$
Bend 3	4.17	8.17	100	6.28	24	$r_{\text{bend},2} = (0.0, 0.5555)$
Main	2.5	10	330	3.53		(0.0, 0.0)

Figure 2: Parameters of the solenoids required for the initial electron lens bend design.

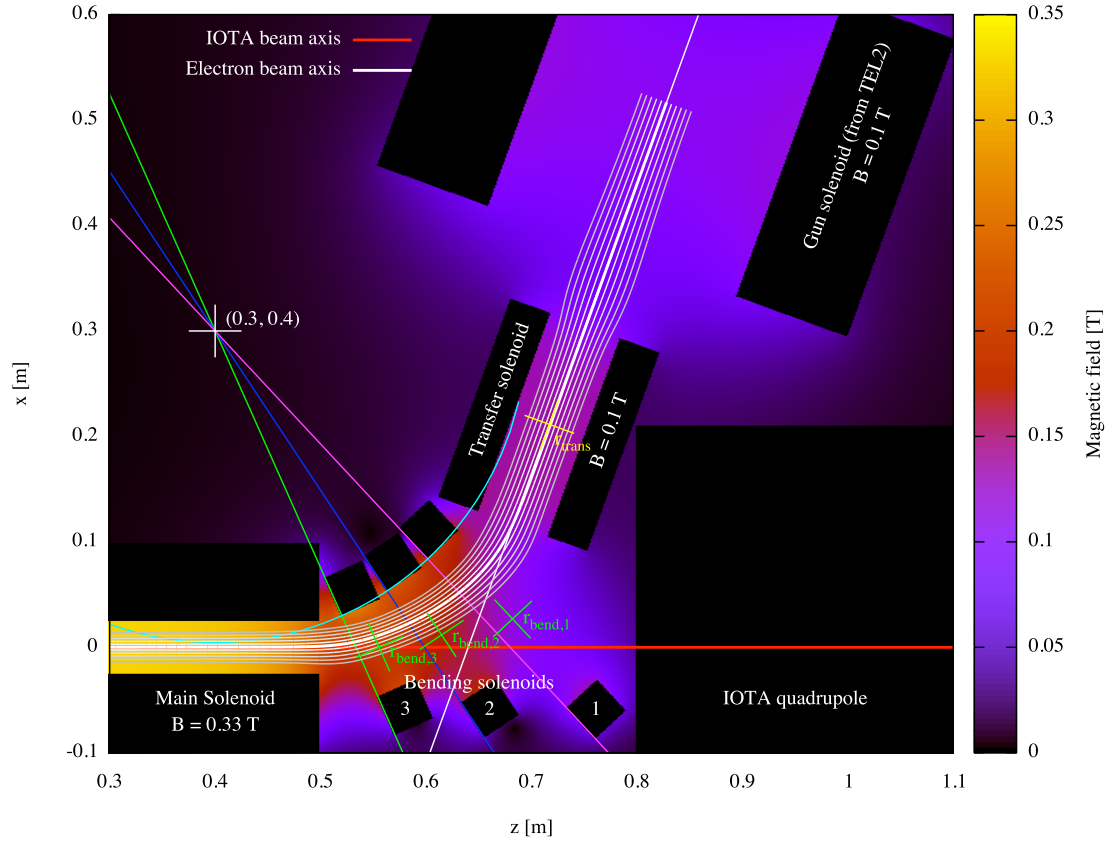


Figure 3: Schematic of an initial bend design for the IOTA electron lens.