Power Deposition in SC1 Coil

Xiaoping Ding

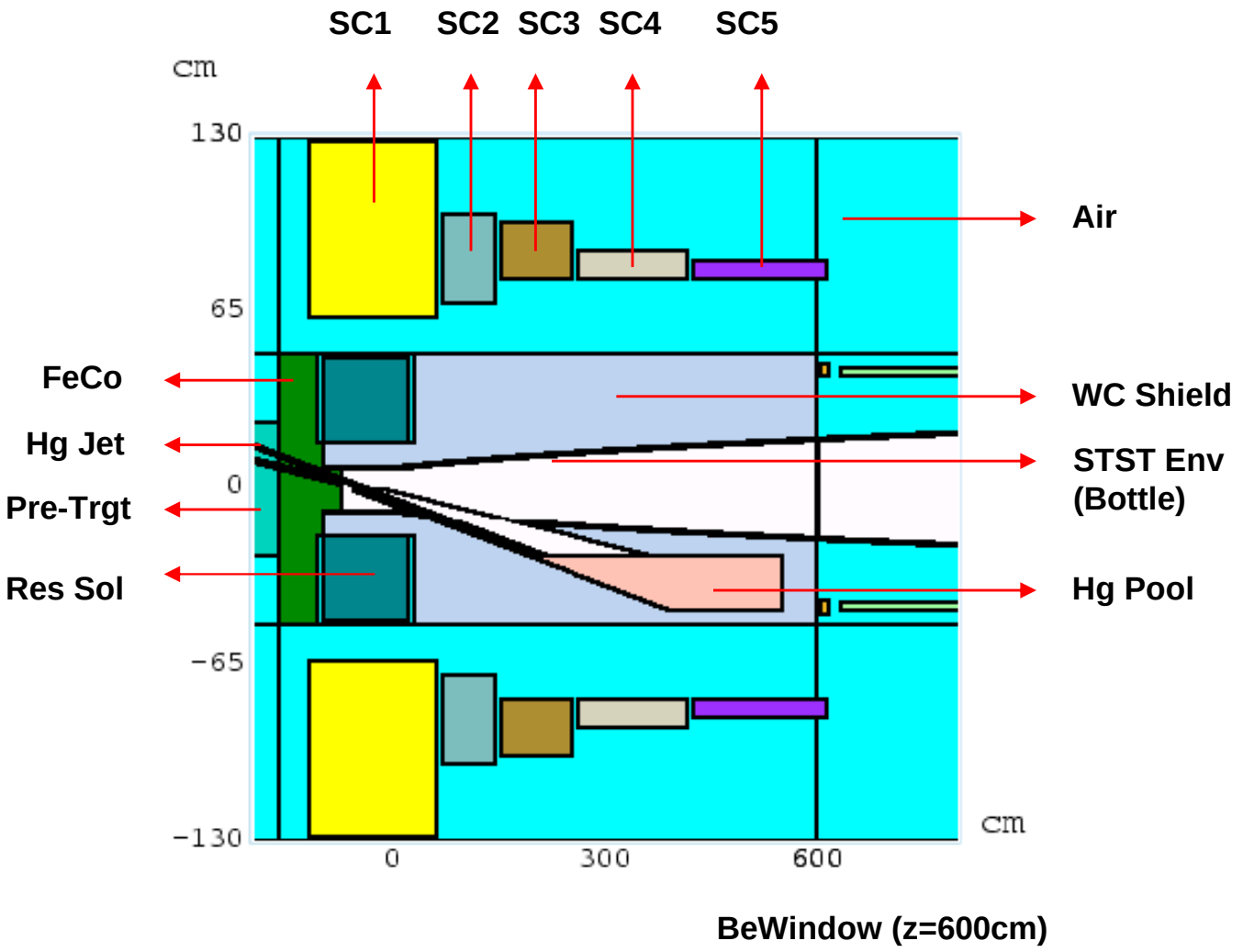
UCLA

Target Studies Apr. 20, 2010

Introduction

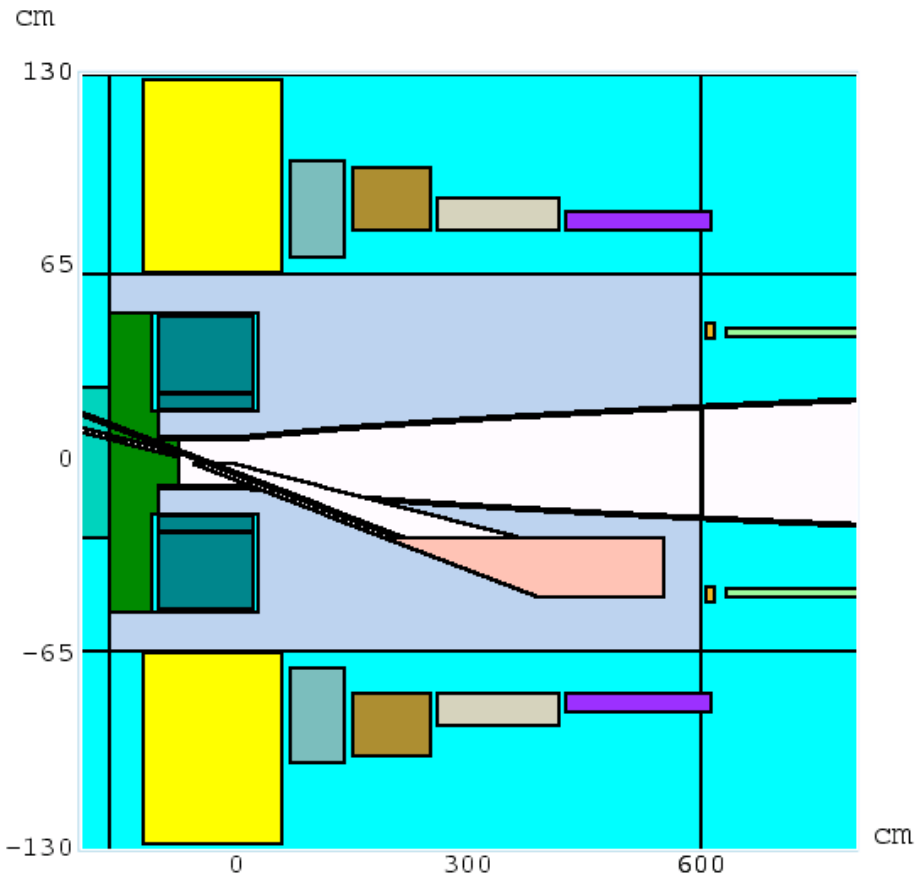
- Using MARS15 to study energy deposition.
- Study II geometry and magnetic field map.
- Using optimized target parameters for Hg jet & Proton Beam.
- The number of particles in a given pulse of beam (4MW, 10GeV) is $2.5*10^{15}$ s^{-1}.

Target Geometry



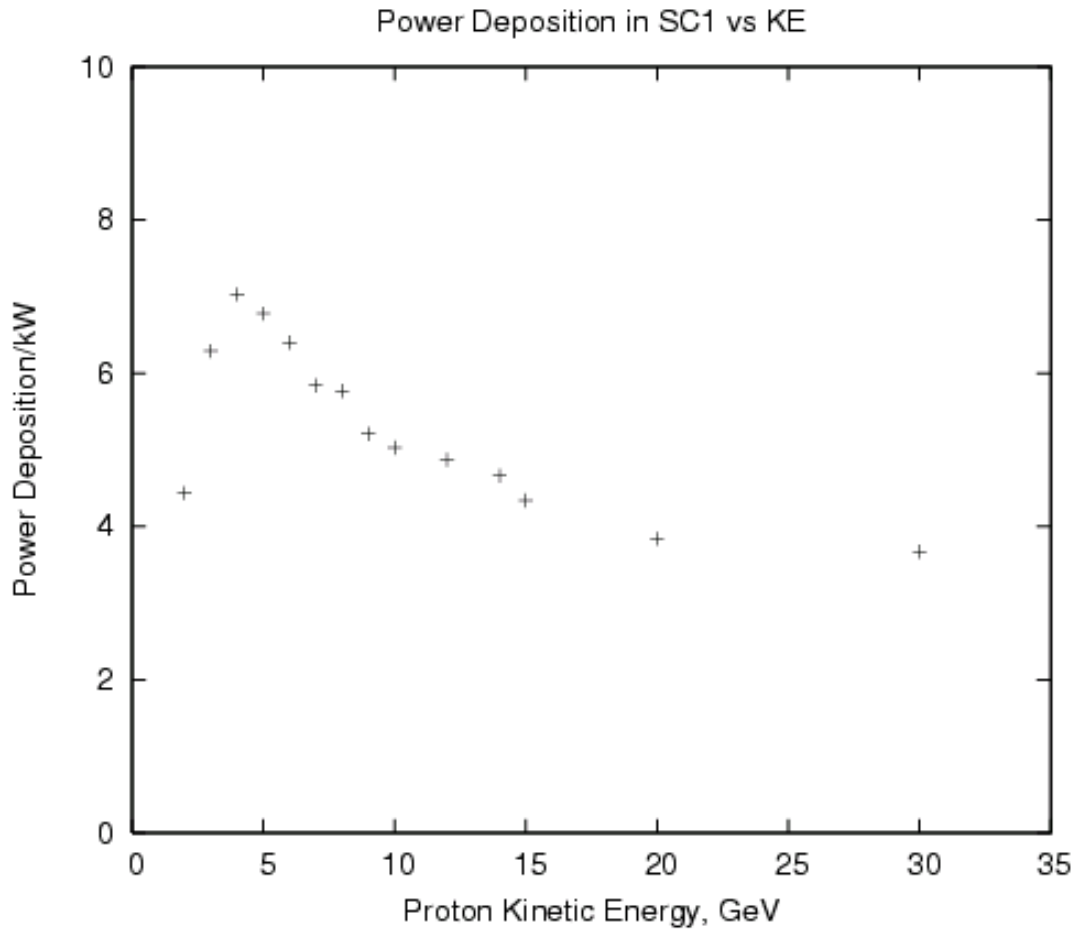
Enhanced Shielding for SC1 Coil

WC shield is extended from R=50 to R=63 cm.



Power Deposition in SC1 Vs KE

Enhanced shielding of WC shield (80%WC+20%Water)



Power Deposition in SC1

10GeV & 4MW Proton beam, Enhanced shielding

Shielding Material	Energy Dep. (GeV)	Power Dep. (kW)
80%WC+20%Water	$1.257*10^{-2}$	5.03
80%WC+20%HG	$9.006*10^{-3}$	3.6
50%WC+50%HG	$1.018*10^{-2}$	4.07
100%HG	$3.845*10^{-2}$	15.39