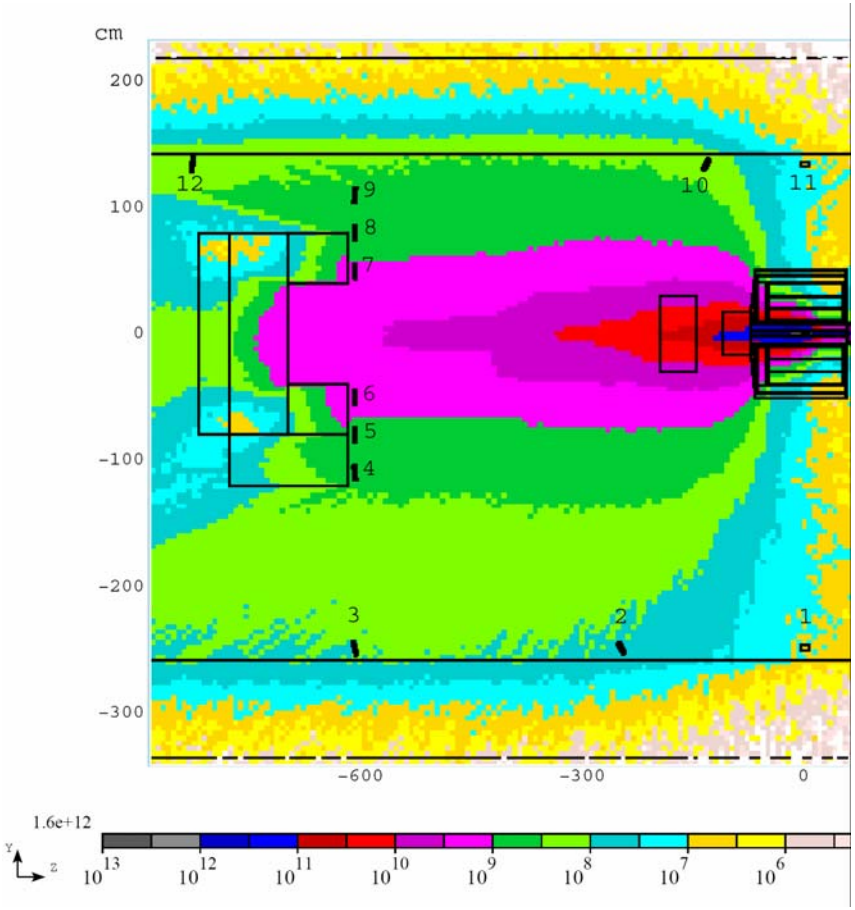
Particle Flux in 13 Detectors for MERIT

Sergei Striganov

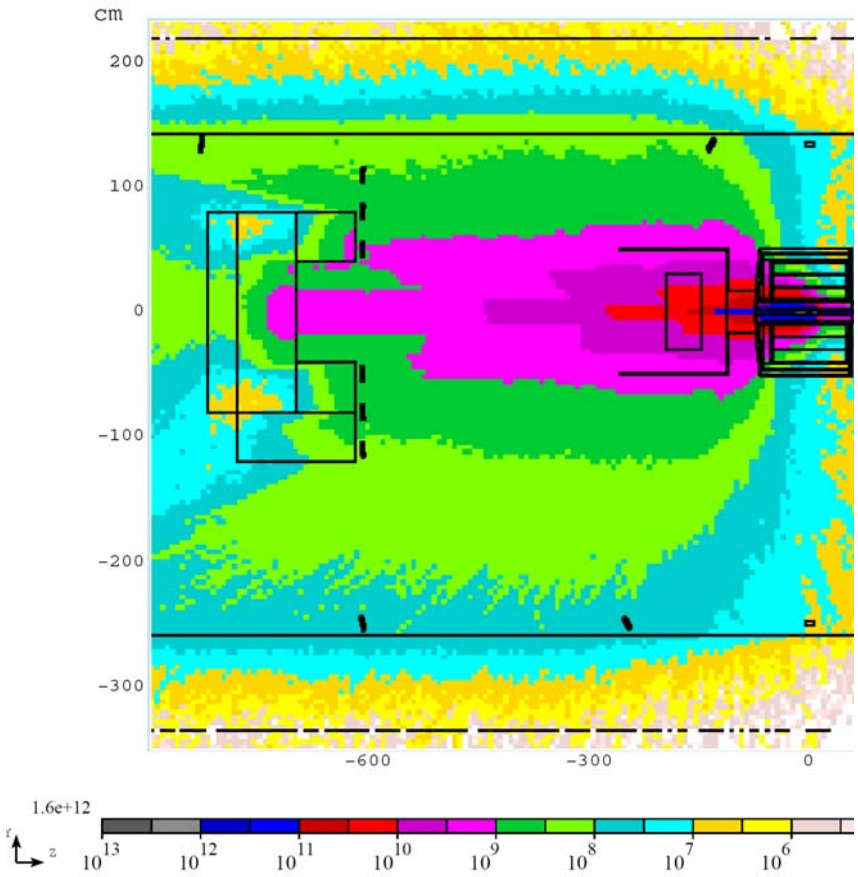
Fermilab

May 14, 2007

Detector positions and charged hadron flux (1/cm^2 per 3 10^{13} protons on target)

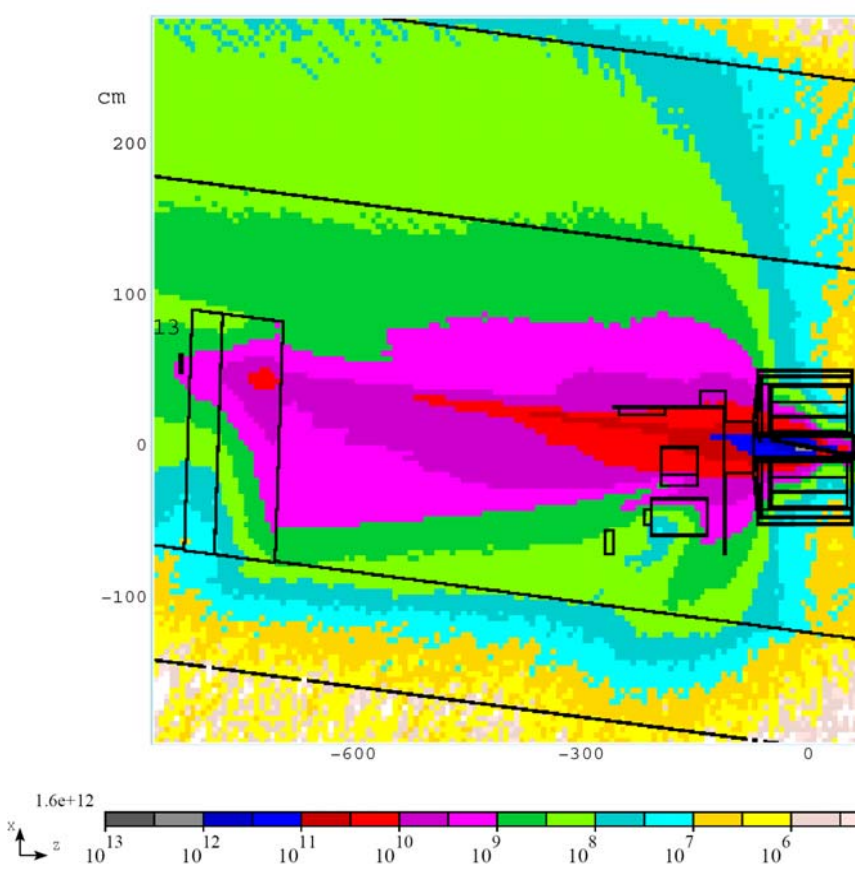


15 Tesla

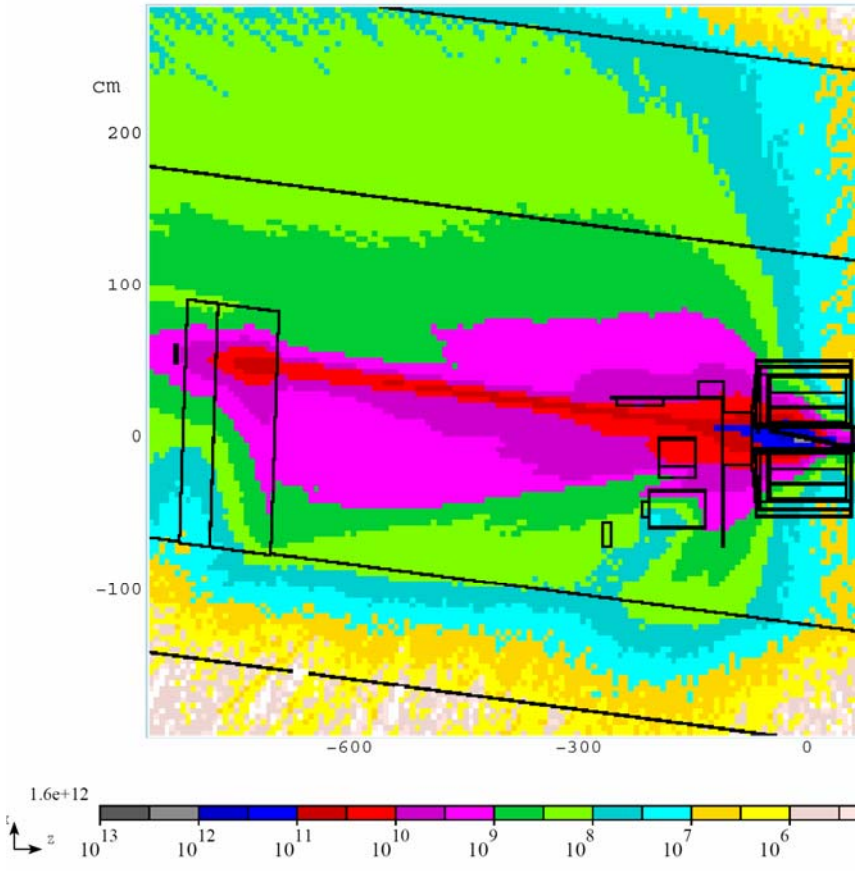


No magnetic field

Detector positions and charged hadron flux (1/cm^2 per 3 10^{13} protons on target)

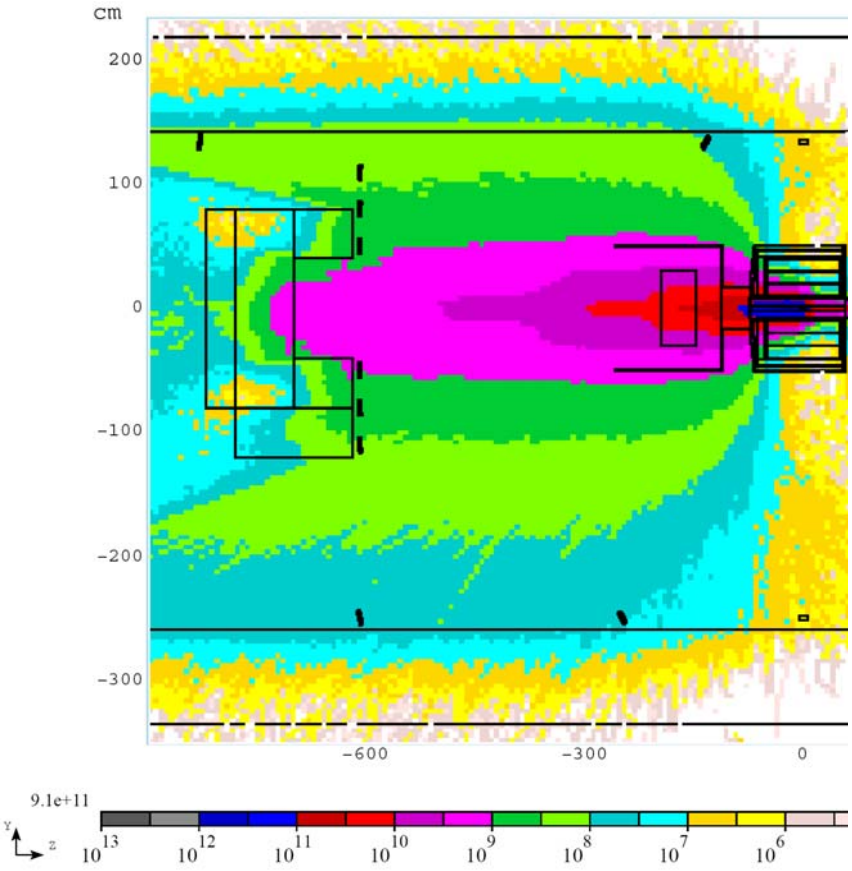


15 Tesla

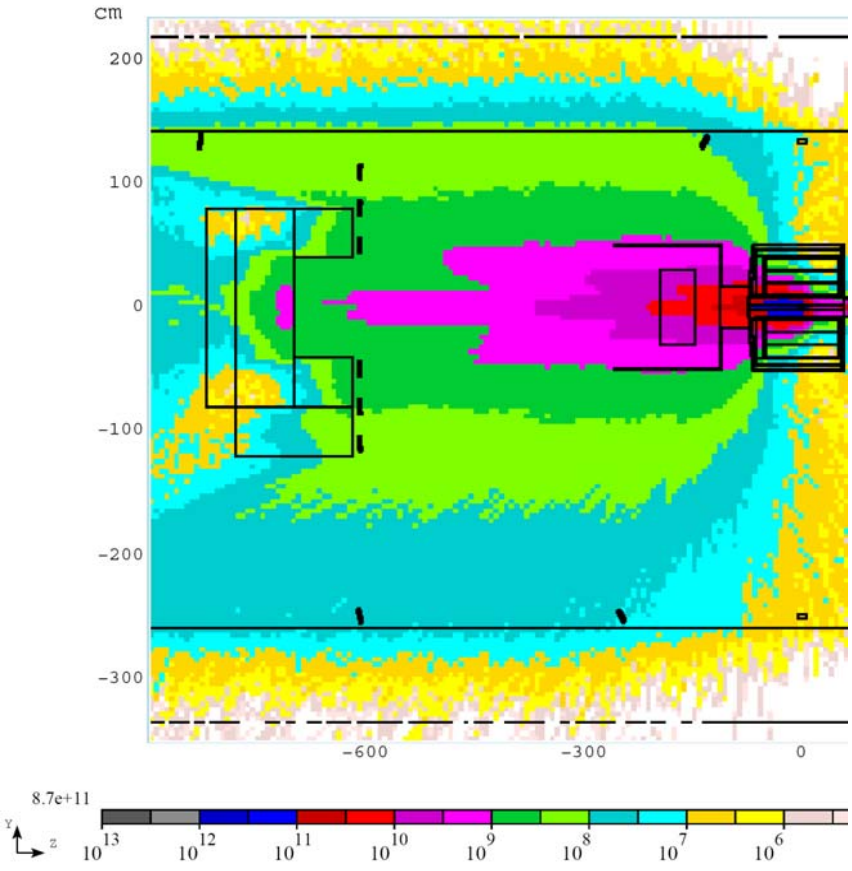


No magnetic field

Charged pion/kaon flux (1/cm^2 per 3 10^{13} protons on target)

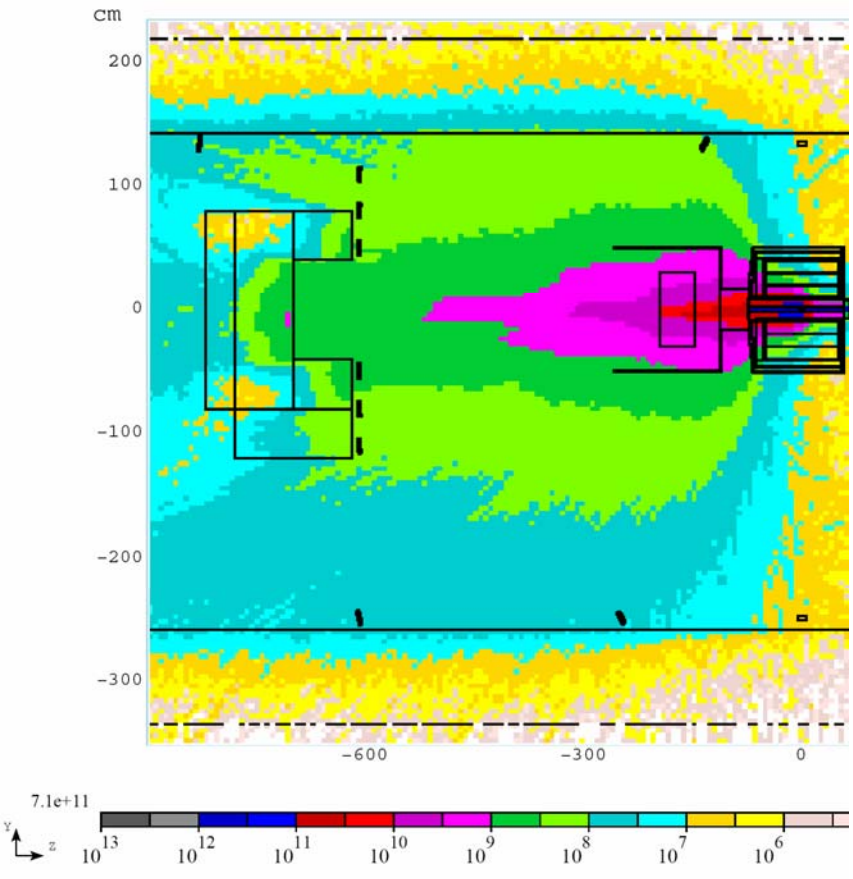


15 Tesla

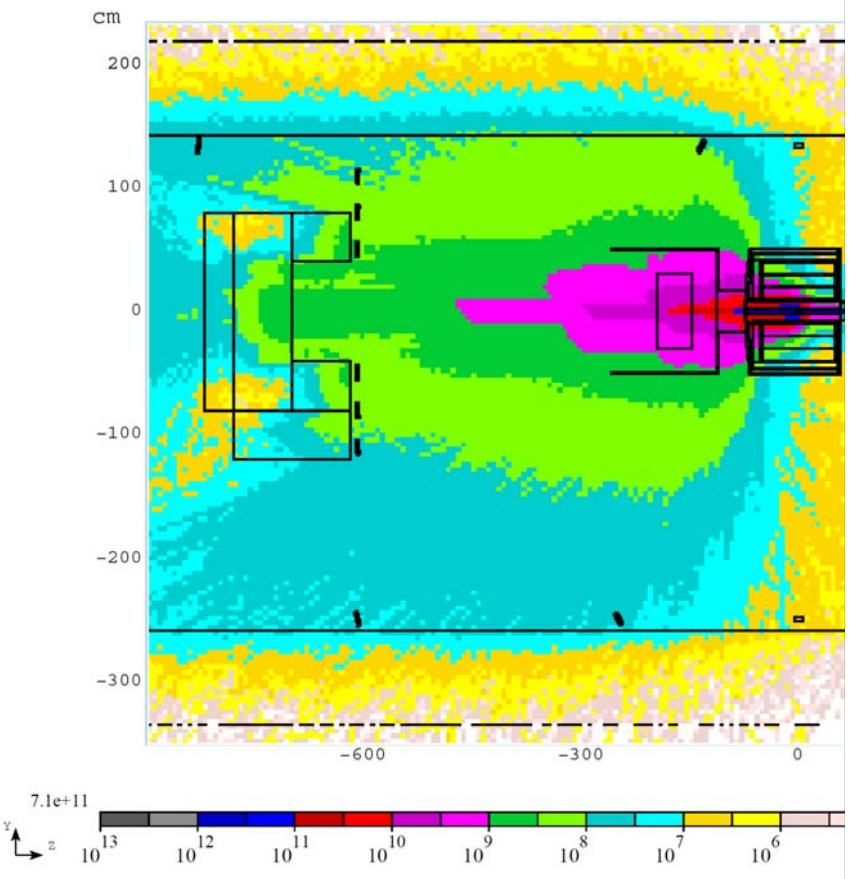


No magnetic field

Proton flux (1/cm^2 per 3 10^{13} protons on target)

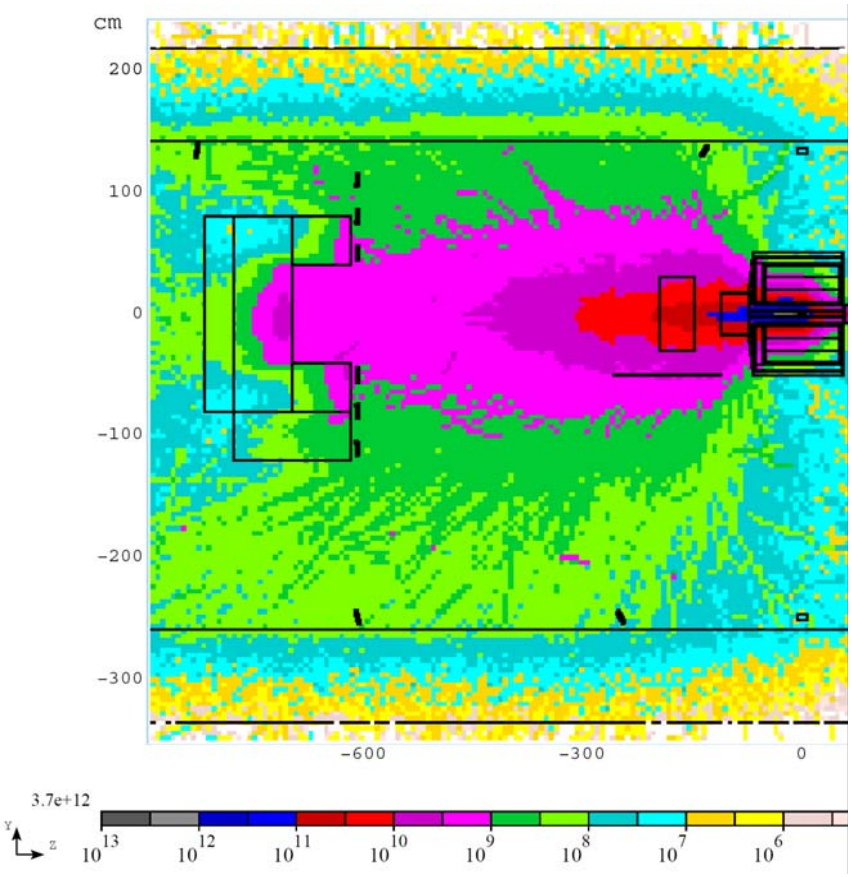


15 Tesla

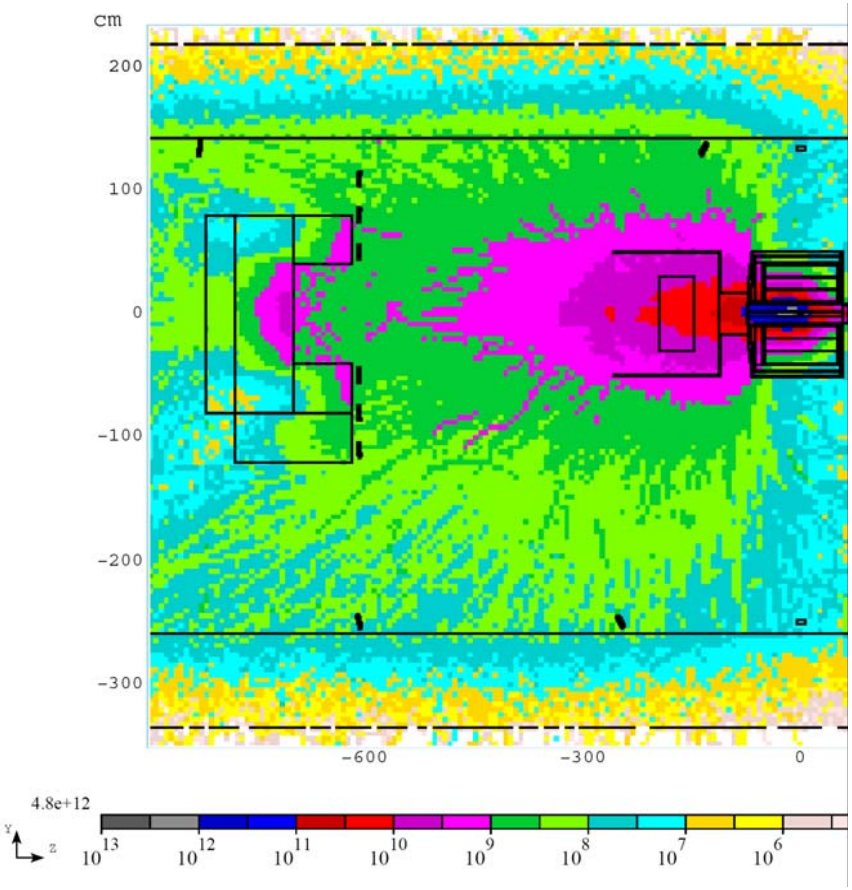


No magnetic field

Electron/positron flux ($1/cm^2$ per $3\ 10^{13}$ protons on target)

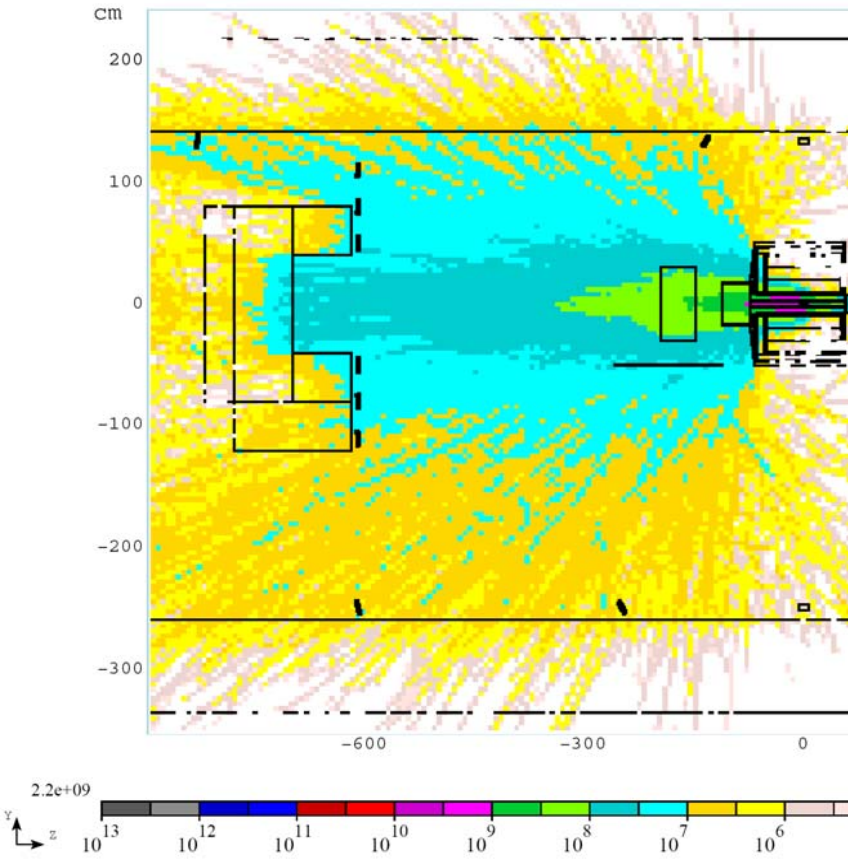


15 Tesla

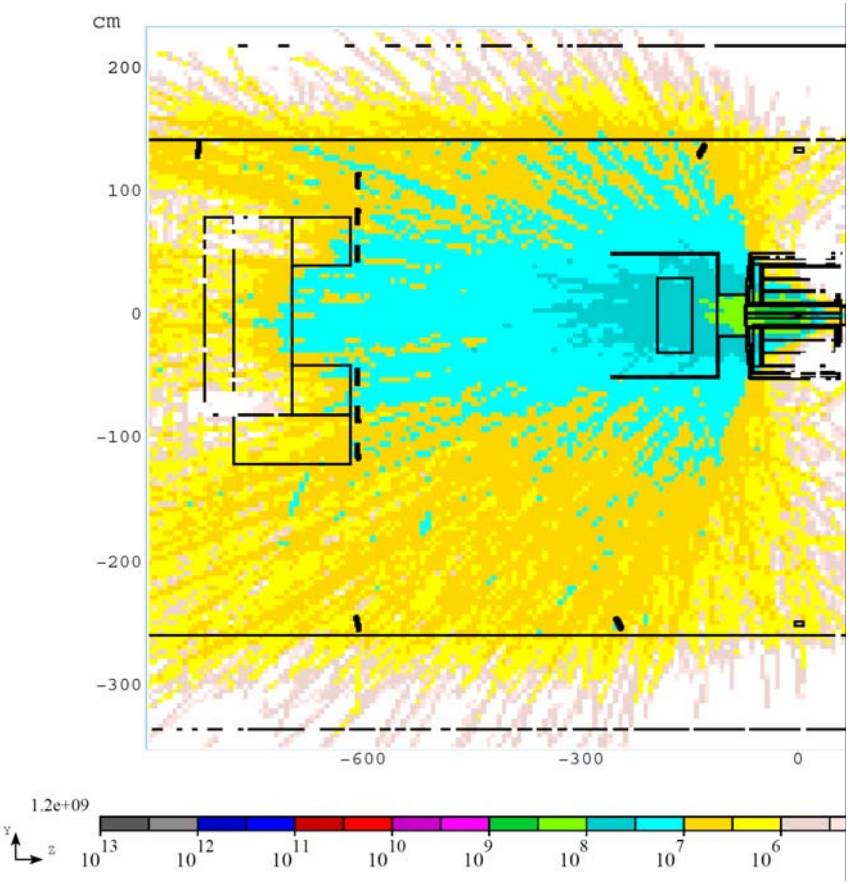


No magnetic field

Muon flux (1/cm^2 per 3 10^{13} protons on target)

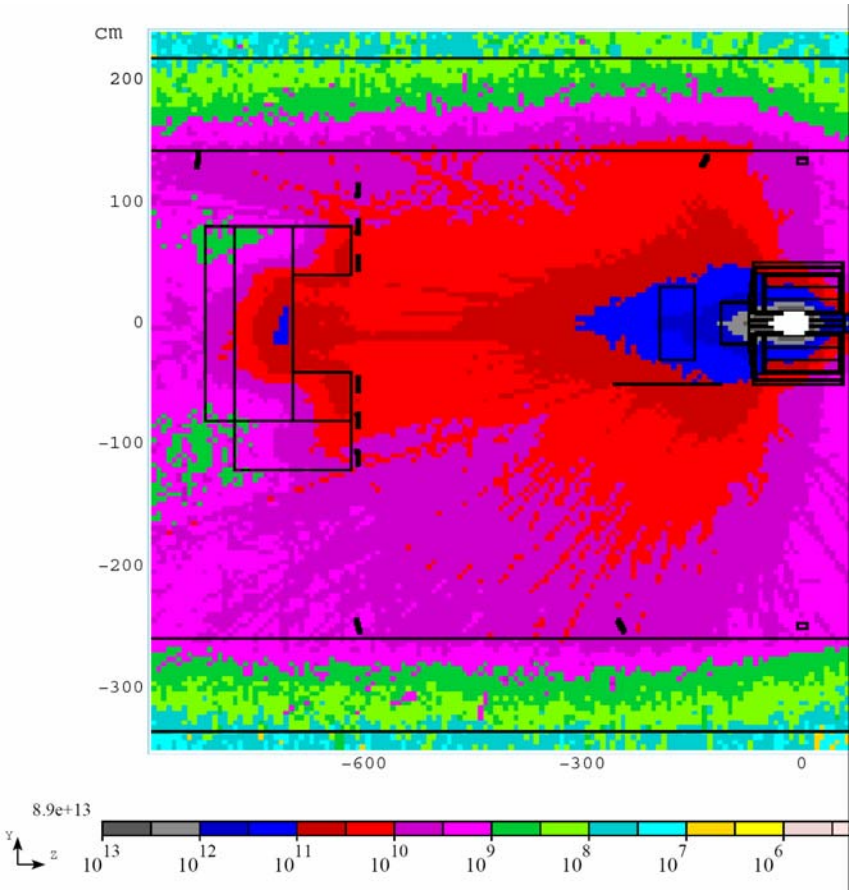


15 Tesla

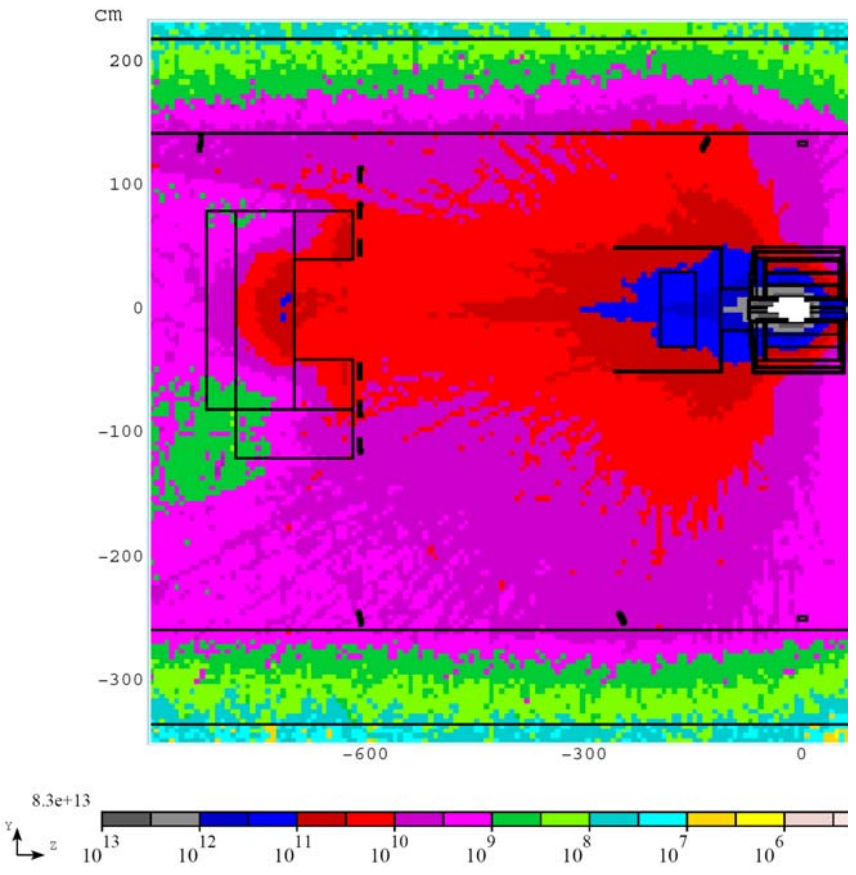


No magnetic field

Gamma flux (1/cm^2 per 3 10^{13} protons on target)

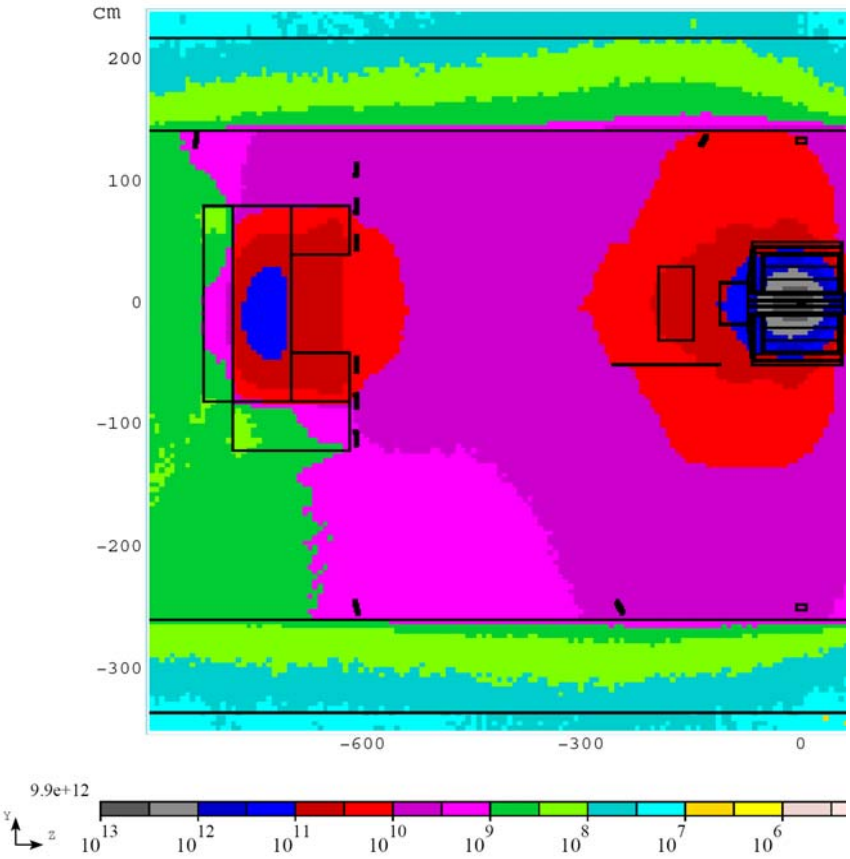


15 Tesla

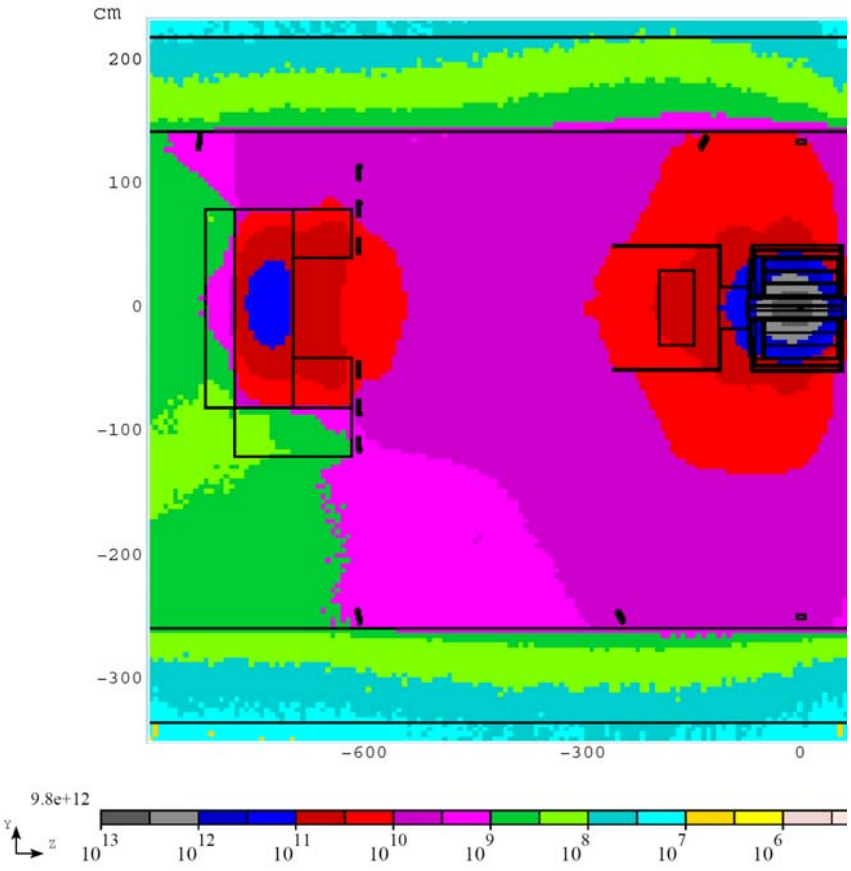


No magnetic field

Neutron flux (1/cm^2 per 3 10^{13} protons on target)



15 Tesla



No magnetic field

Energy deposition in detectors
15 Tesla

# detector	Energy deposition in detector (GeV/proton)	Energy deposition from attenuator	Energy deposition from neutrons
1	$4.0\ 10^{-10}$	16%	35%
2	$2.1\ 10^{-9}$	0.3%	6%
3	$2.0\ 10^{-9}$	0.1%	5%
4	$5.3\ 10^{-9}$	10%	1%
5	$1.1\ 10^{-8}$	5%	2%
6	$1.6\ 10^{-8}$	12%	4%
7	$1.4\ 10^{-8}$	9%	8%
8	$7.9\ 10^{-9}$	5%	3%
9	$5.6\ 10^{-9}$	2%	4%
10	$4.5\ 10^{-9}$	0.2%	7%
11	$6.2\ 10^{-9}$	1.4%	43%
12	$2.2\ 10^{-9}$	1.7%	1%
13	$1.2\ 10^{-8}$	89%	2%

Fluxes and energy depositions in detectors
15 Tesla

	neut/cm^2	ch.had/cm^2	gam/cm^2	el/cm2	mu/cm2	GeV/g	+- GeV/g
1.	1.236E-04	2.259E-07	9.880E-05	5.586E-07	2.211E-08	6.208E-09	1.178E-09
2.	1.190E-04	3.052E-06	1.759E-04	1.921E-06	6.516E-08	3.321E-08	8.903E-09
3.	4.621E-05	3.133E-06	1.181E-04	7.626E-06	2.661E-07	3.139E-08	4.820E-09
4.	7.621E-05	1.344E-05	2.516E-04	1.760E-05	3.146E-07	8.271E-08	9.066E-09
5.	2.545E-04	2.328E-05	7.699E-04	3.218E-05	6.037E-07	1.747E-07	1.838E-08
6.	5.419E-04	4.744E-05	7.270E-04	3.677E-05	6.624E-07	2.489E-07	1.889E-08
7.	5.317E-04	3.883E-05	7.855E-04	4.107E-05	5.559E-07	2.181E-07	2.828E-08
8.	2.319E-04	2.129E-05	4.083E-04	1.991E-05	6.223E-07	1.234E-07	1.110E-08
9.	1.379E-04	1.222E-05	2.467E-04	1.881E-05	4.654E-07	8.844E-08	1.481E-08
10.	3.688E-04	6.868E-06	6.489E-04	6.342E-06	1.559E-07	7.071E-08	6.218E-09
11.	3.508E-04	3.295E-07	1.386E-04	6.071E-07	1.723E-07	9.772E-09	1.332E-09
12.	4.085E-05	7.952E-06	1.701E-04	5.339E-06	2.054E-07	3.500E-08	4.165E-09
13.	7.297E-05	3.490E-05	4.228E-04	3.317E-05	2.539E-07	1.849E-07	1.240E-08

Energy deposition ratio

- Detector 1: -90 degree
- Detector 2: -45 degree
- Detector 3: -22 degree
- Detector 4: -10 degree
- Detector 5: -7.5 degree
- Detector 6: -4.7 degree
- Detector 7: 4.7 degree
- Detector 8: 7.5 degree
- Detector 9: 10 degree
- Detector 10: 45 degree
- Detector 11: 90 degree
- Detector 12: 9 degree
- Detector 13: 0 degree