SHIELDING STUDIES FOR IDS80 (NO IRON PLUG/YOKE), ADDING SHIELDING IN 75 TO 80 cm (WC/H_2O, B, Cd) .

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Energy deposition from MARS+MCNP codes (10^{-11} MeV NEUTRON ENERGY CUTOFF).

IDS80 GEOMETRY WITHOUT IRON PLUG AND YOKE MATERIAL (TO ACCOMODATE ACCESS TO DIFFERENT PARTS OF THE TARGET STATION).

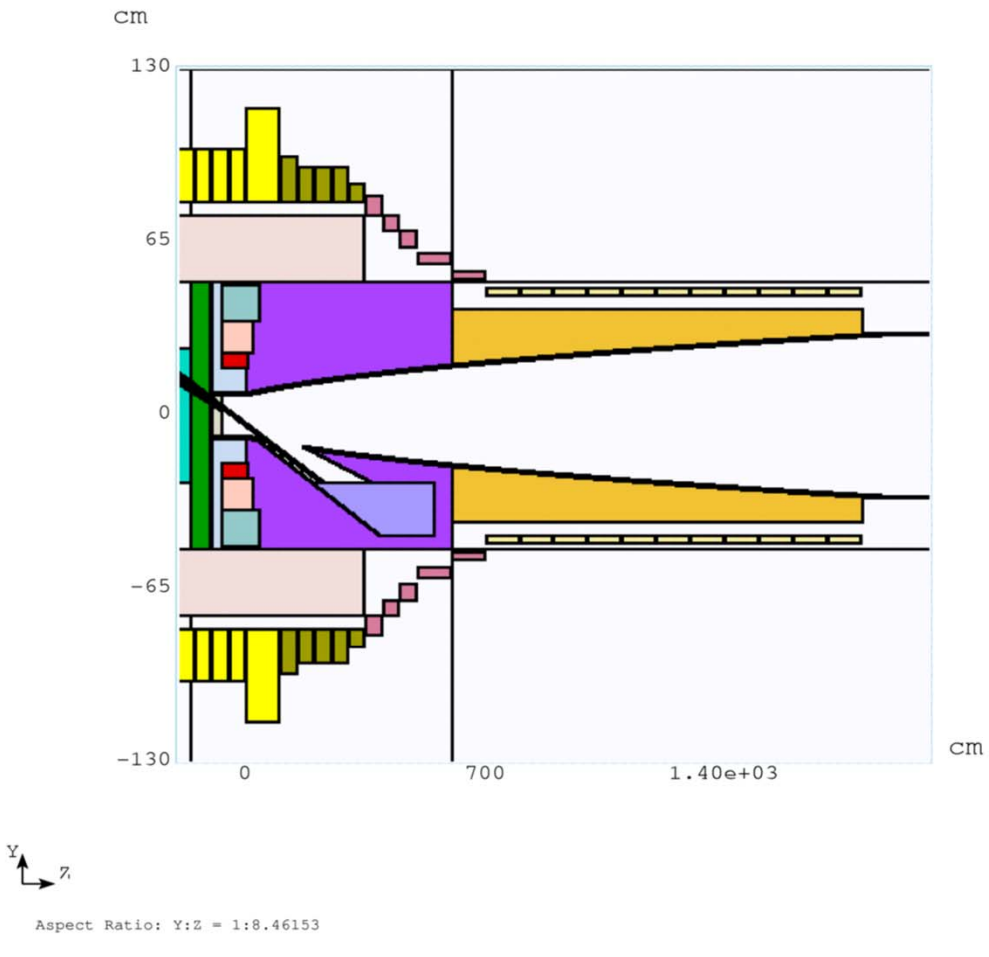
SHIELDING (60%WC+40% H_2O)+ SHIELDING FROM 75 TO 80 cm (60%WC+40% H_2O or 20%B10+80%B11 or Cd)

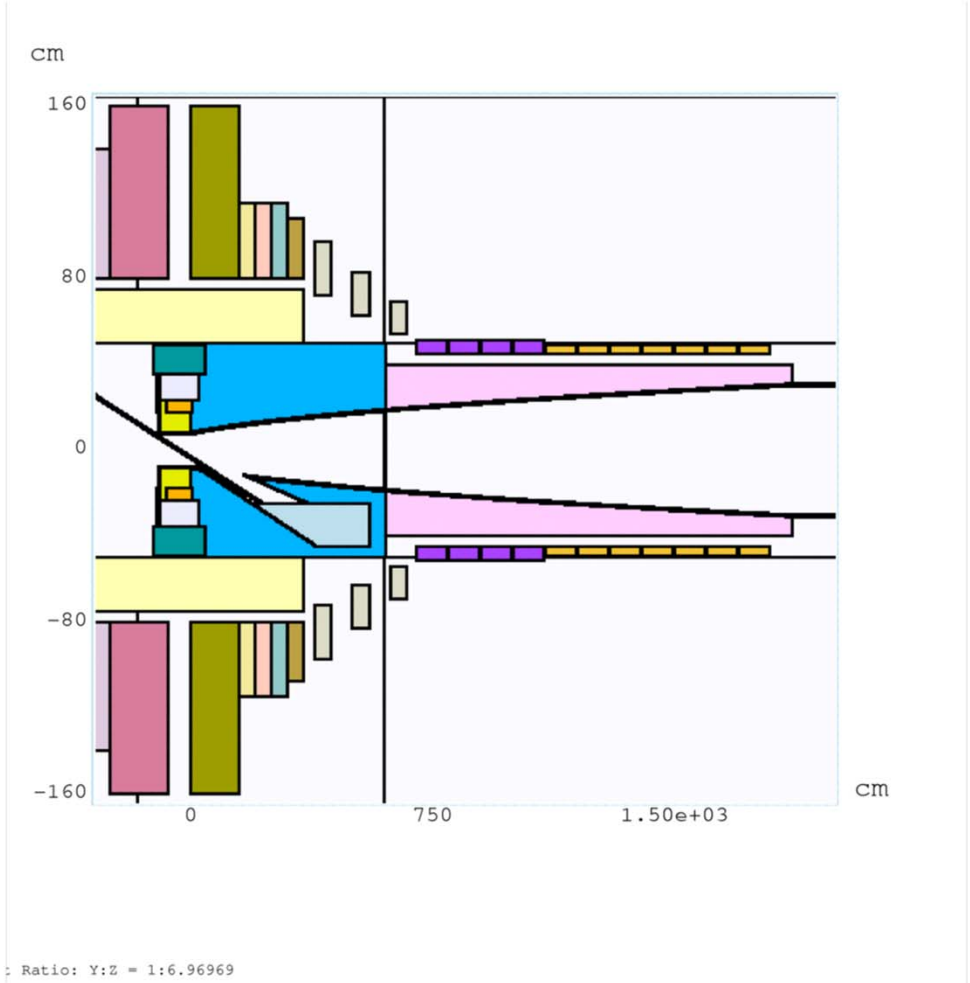
4MW proton beam. Np=400,000

PROTONS ENERGY E=8 GeV.

GAUSSIAN PROFILE: $\sigma_x = \sigma_y = 0.12$ cm.

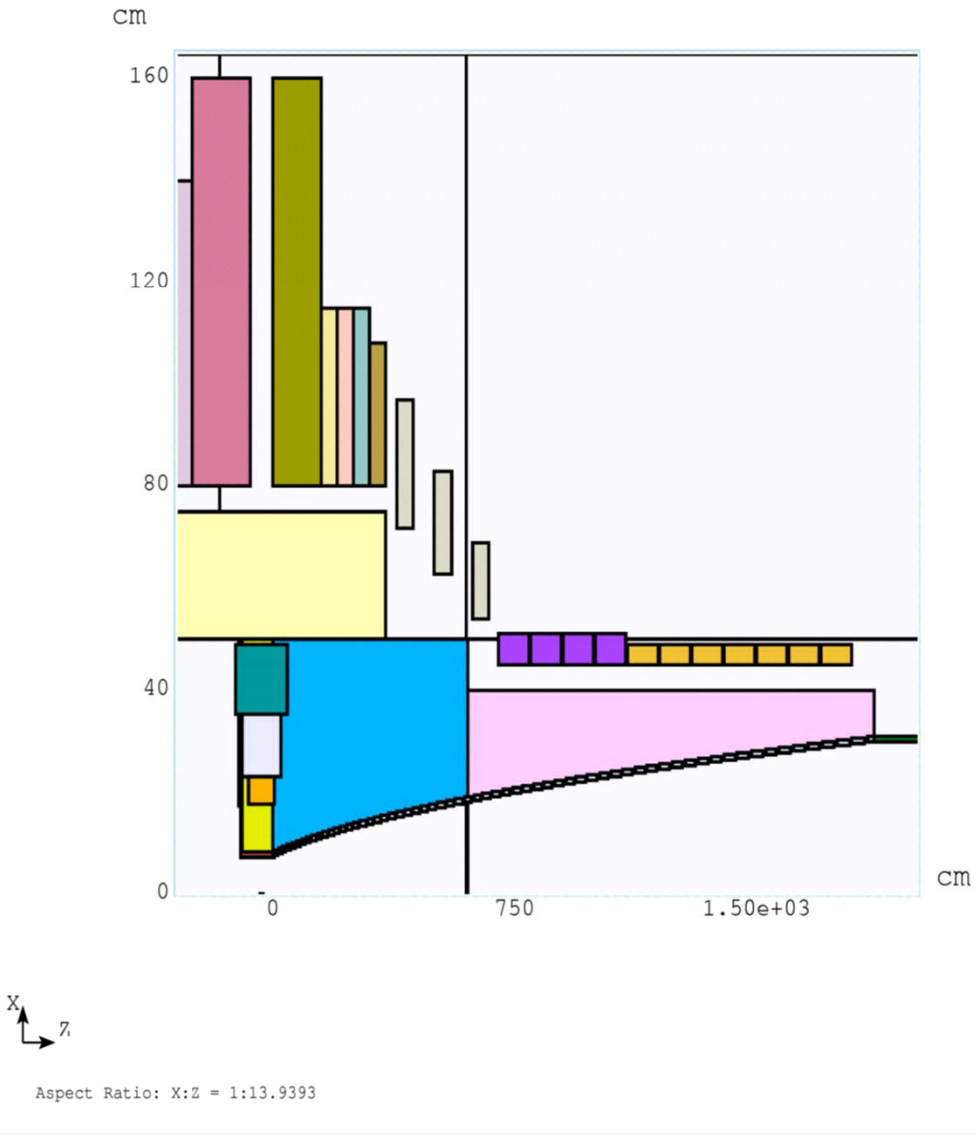
IDS80 GEOMETRY WITH AND WITHOUT IRON PLUG AND YOKE.





NEW: SC#1-7 -300<z<345 cm R_{in}=80.0 cm R_{out}=140 (1)/160 (2,3)/115 (5-6)/108(7) cm(NbSn)
SC#8-10 383<z<667 cm R_{in}=72/63/54 cm R_{out}=97.0/83/69 cm (NbTi)
SC#11-14 700<z<1090 cm R_{in}=45 cm R_{out}=51 cm (NbTi)
SC#15-21 7190<z<1090 cm R_{in}=45 cm R_{out}=49 cm (NbTi) (TOTAL # SC=21)

INSERT ADDITIONAL SHIELDING (WC, B/H_2O, CD) BETWEEN 75 AND 80 cm RADIUS, AROUND INTERACTION AREA.



ENERGY DEPOSITED IN SC SOLENOIDS (SC#), SHIELDING (SH#).

NiSn/NiTi	V(10^5p)	V	WC/H_2O	B10/B11	CD
SC#1	6.23 10^{-4}	1.35 10^{-3}	7.48 10^{-6}	6.6 10^{-4}	4.23 10^{-5}
SC#2	0.40	0.42	0.25	0.36	0.33
SC#3	2.47	2.64	1.80	2.31	2.12
SC#4	0.30	0.29	0.18	0.28	0.23
SC#5	0.22	0.22	0.13	0.18	0.19
SC#6	0.10	0.10	0.08	0.10	0.08
SC#7	0.04	0.05	0.04	0.06	0.04
SC#1-7	3.53	3.73	2.49	3.29	3.00
SC#8-10	0.25	0.28	0.28	0.26	0.29
SC#11-14	0.24	0.23	0.22	0.21	0.22
SC#15-21	0.17	0.17	0.18	0.18	0.19
SC#1-21	4.19	4.41	3.18	3.94	3.70

	V(10^5p)	V	WC/H_2O	B10/B11	CD
SH#1	922.50	922.00	921.00	923.00	924.00
SH#2	1151.50	1164.50	1160.00	1159.50	1160.00
SH#3	37.68	38.72	38.34	37.90	39.11
SH#4	38.91	38.55	38.26	38.21	38.56
SH#5	VAC	VAC	1.53	0.67	0.76
SH#1-5	2150.59	2163.77	2159.13	2159.27	2162.43

ENERGY DEPOSITED IN RESISITVE SOLENOIDS (RS#),

BEAM PIPE(BP#).

(Cu)	V(10^5p)	V	WC/H_2O	B10/B11	CD
RS#1	69.95	69.55	69.45	69.25	69.70
RS#2	76.55	76.15	75.90	76.05	76.40
RS#3	39.96	40.00	39.89	40.13	39.96
RS#1-3	186.46	185.70	185.24	185.43	186.06

(STST)	V(10^5p)	V	WC/H_2O	B10/B11	CD
BP#1	201.00	202.30	203.00	202.85	202.75
BP#2	253.10	253.55	253.30	252.10	252.55
BP#3	5.61	5.60	5.43	5.35	5.51
BP#1-3	459.71	461.45	461.73	460.30	460.81

ENERGY DEPOSITED IN DIFFERENT PARTS OF TERGET STATION: OTHER PARTS, TOTALS, PEAK VALUES.

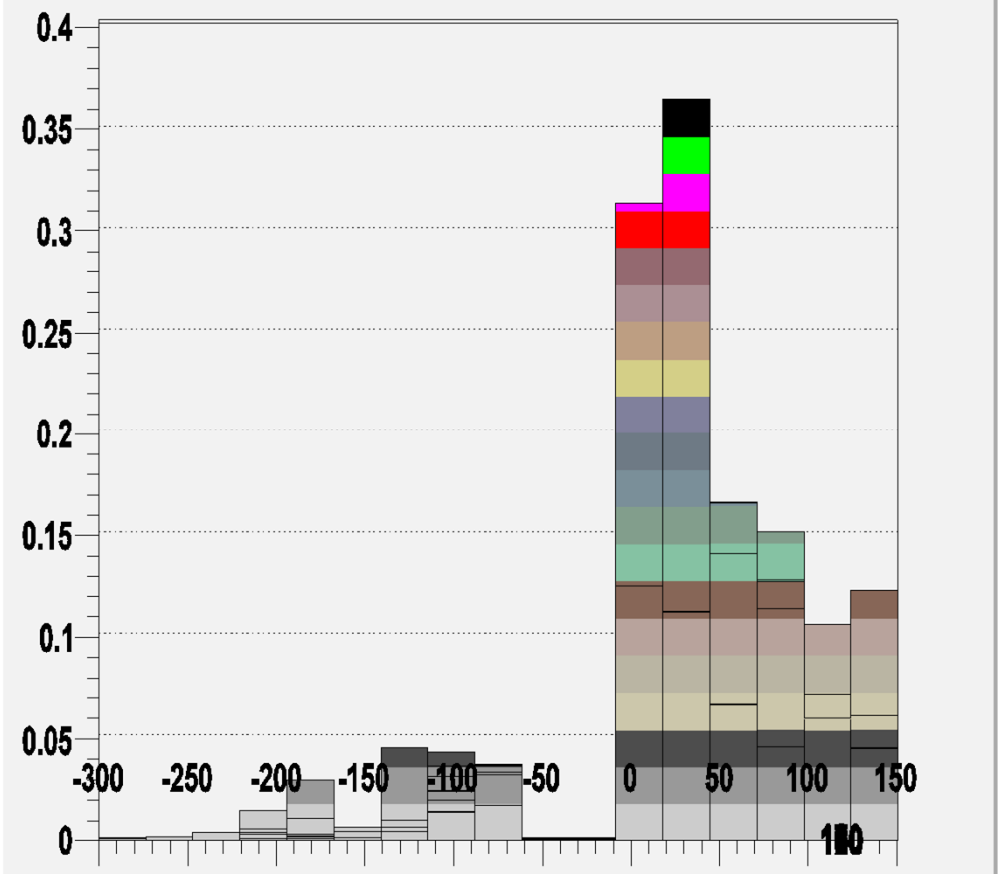
TOTALS	V(10^5p)	V	WC/H_2O	B10/B11	CD
SC#1-21	4.19	4.41	3.17	3.94	3.70
SH#1-4(5)	2150.59	2163.77	2159.13	2159.27	2162.43
RS#1-3	186.46	185.7	185.24	185.43	186.06
BP#1-3	459.71	462.45	461.53	460.30	460.81
Hg TARG.	375.50	374.5	375.45	376.20	375.70
Hg POOL	9.88	9.87	9.74	9.33	9.95
Be WIND.	0.52	0.51	0.50	0.52	0.51
TOTAL	3186.85	3201.11	3194.95	3194.99	3199.16

NiSn/NiTi	V(10^5p)	V	WC/H_2O	B10/B11	CD
SC#3	2.38	2.64	1.78	2.31	2.12
SC#1-21	4.11	4.41	3.18	3.94	3.70
PEAK(SC#3)	0.36	0.29	0.26	0.67	0.25
DPA(SC#3)10^9	5.0	3.4	3.6	4.6	5.0

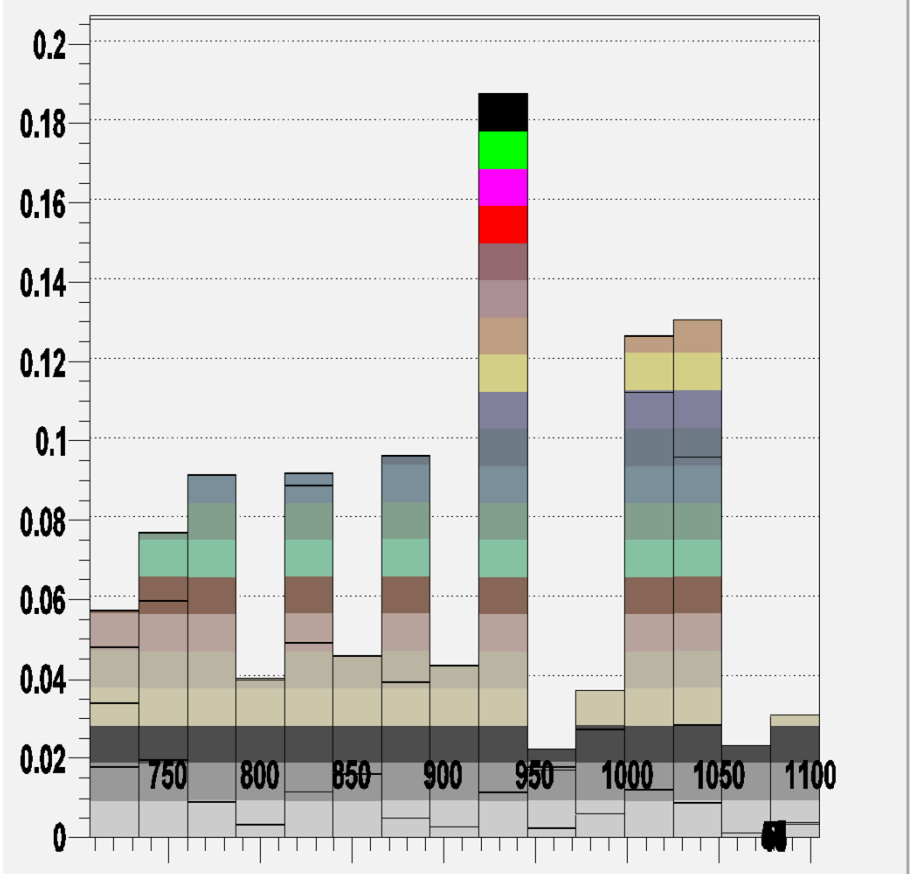
PEAK VALUES OF DEPOSITED ENERGY IS SC#1-7, SC#11-14

75<r<cm VACUUM (10^5 events).

PEAK VALUES IN mW/gr(SC#1-7)

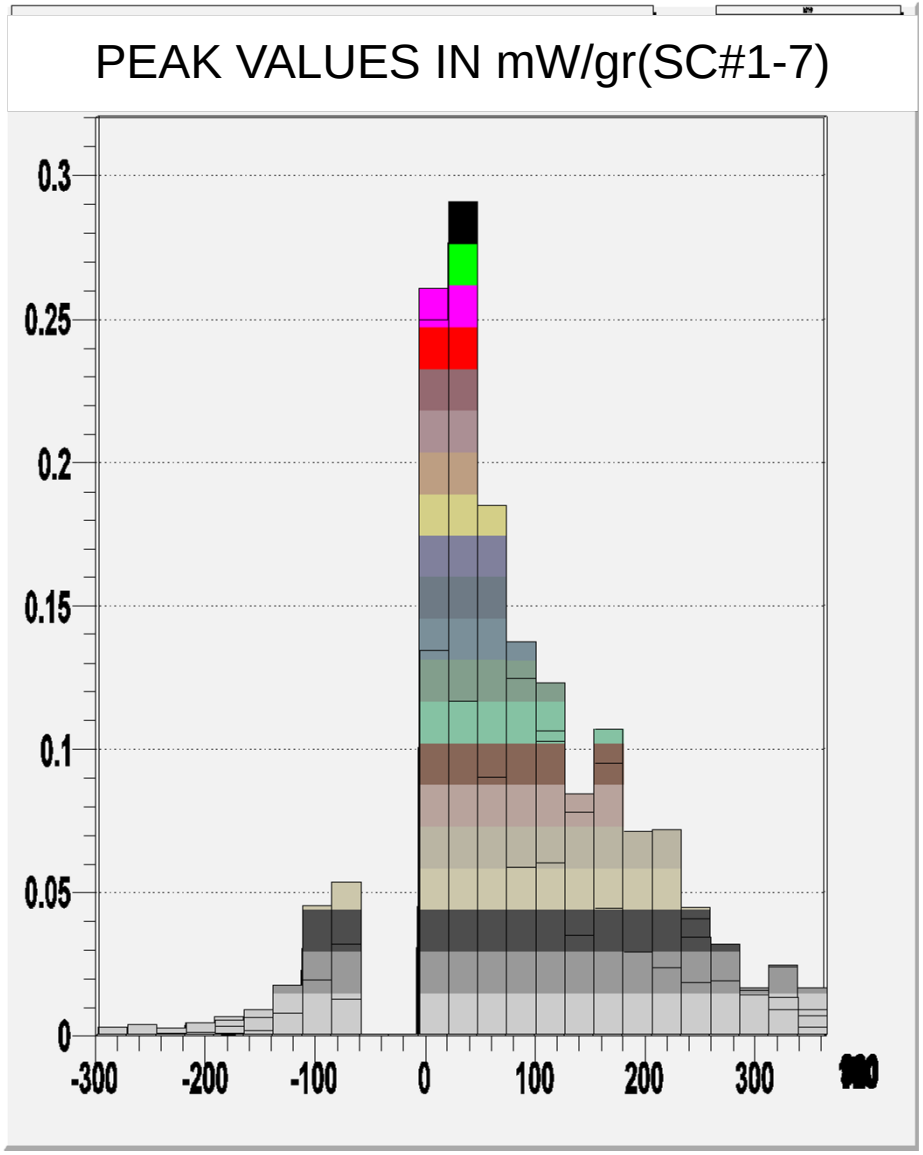


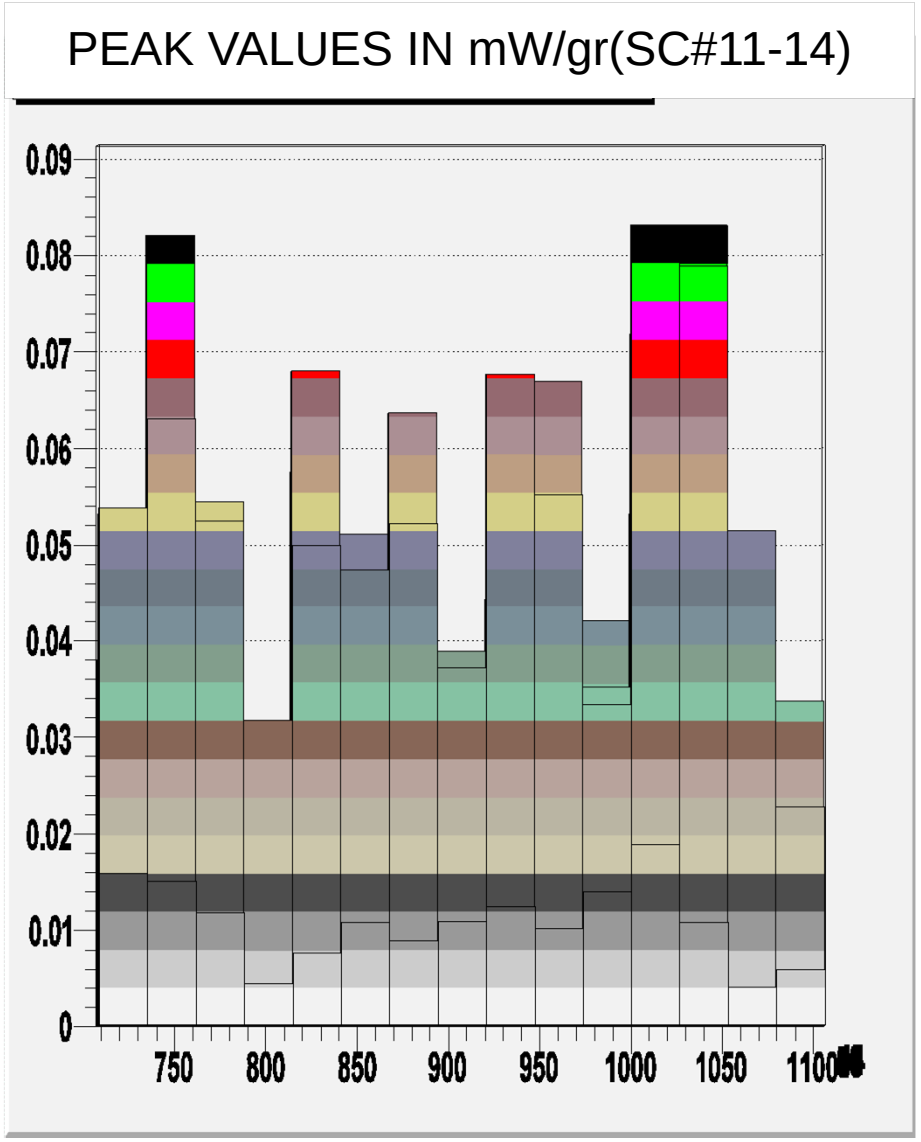
PEAK VALUES IN mW/gr(SC#11-14)



PEAK VALUES OF DEPOSITED ENERGY IS SC#1-7, SC#11-14

75<r<cm VACUUM (4.10^5 events).

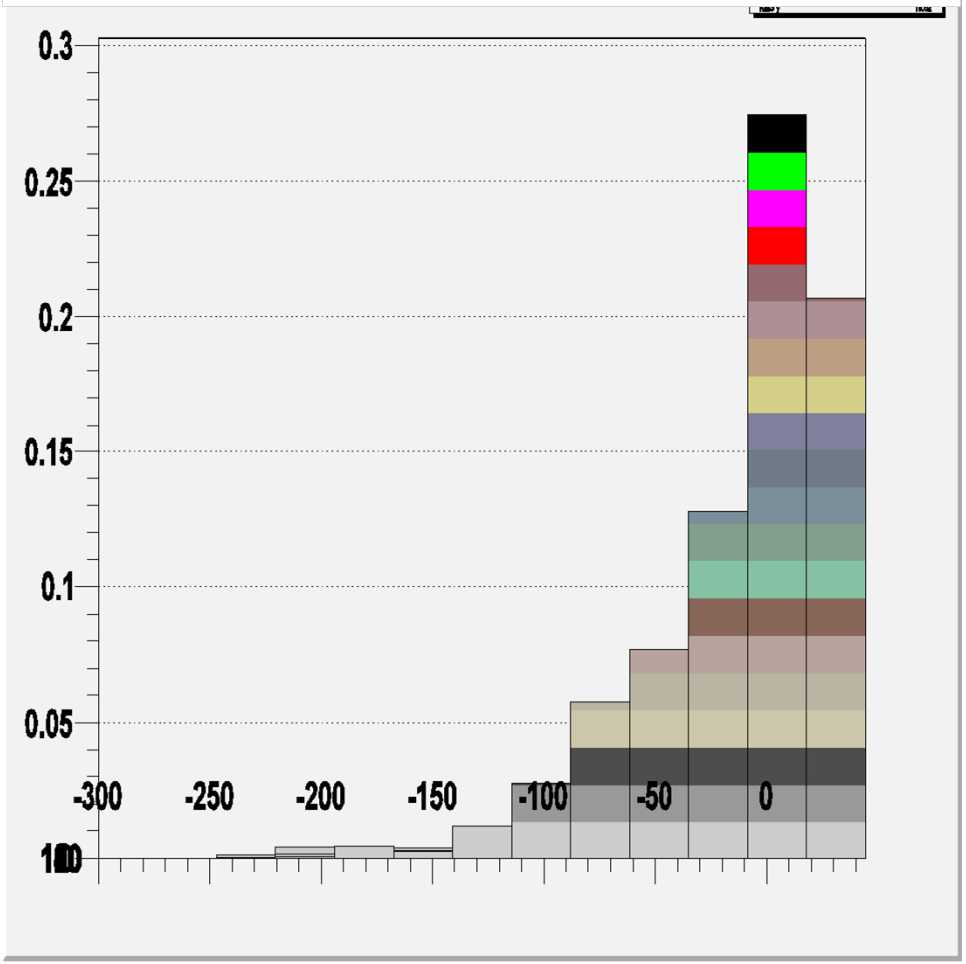




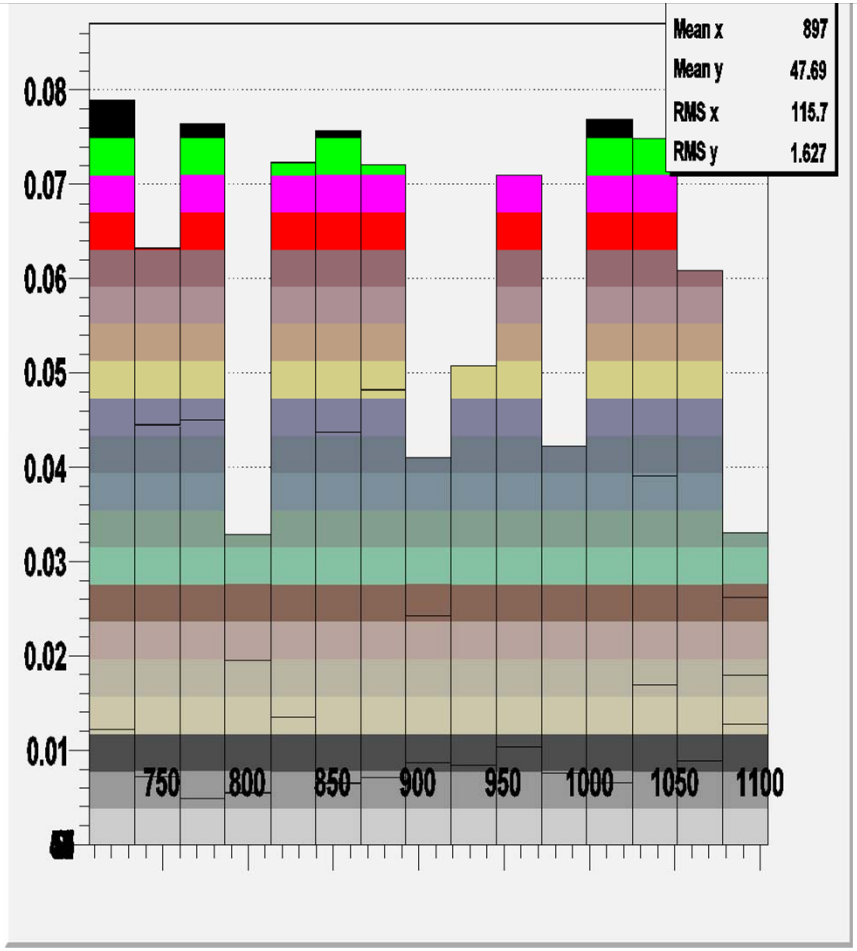
PEAK VALUES OF DEPOSITED ENERGY IS SC#1-7, SC#11-14

75<r<80 cm 60%WC+40%H2O(4.10^5 events).

PEAK VALUES IN mW/gr(SC#1-7)



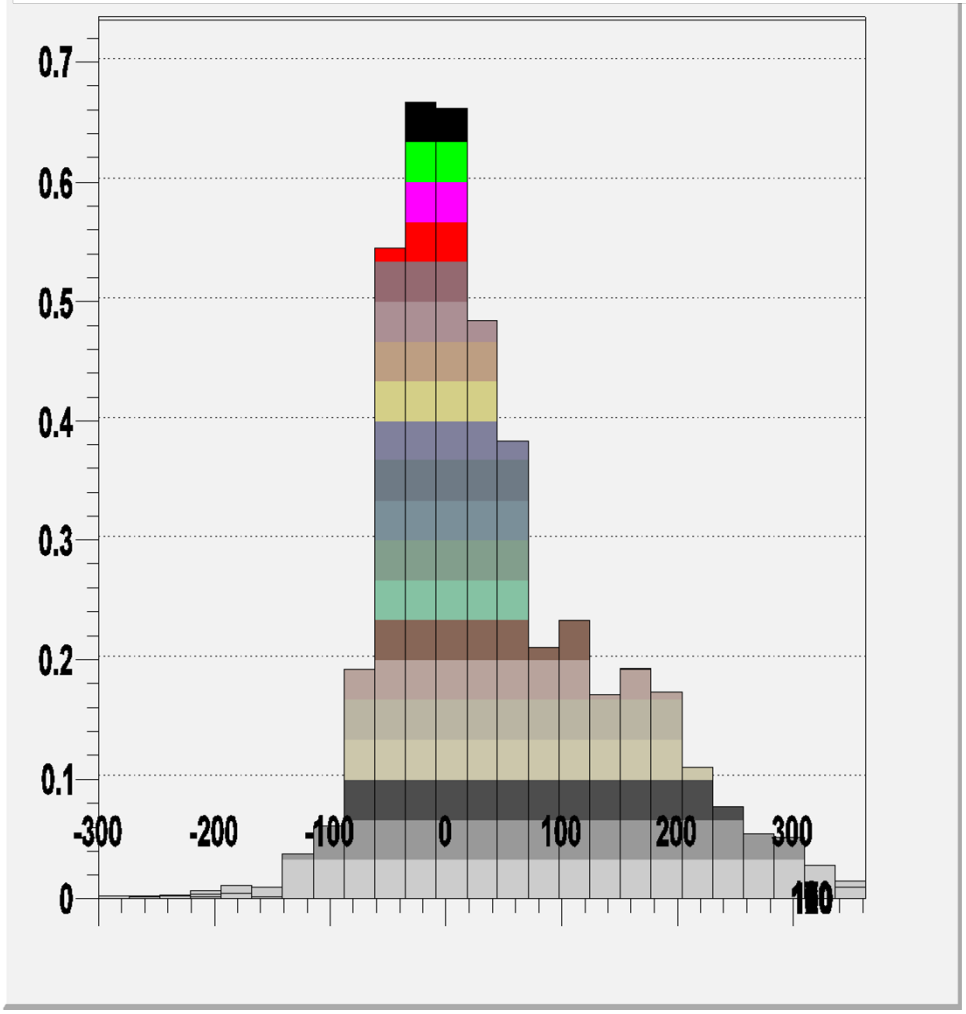
PEAK VALUES IN mW/gr(SC#11-14)



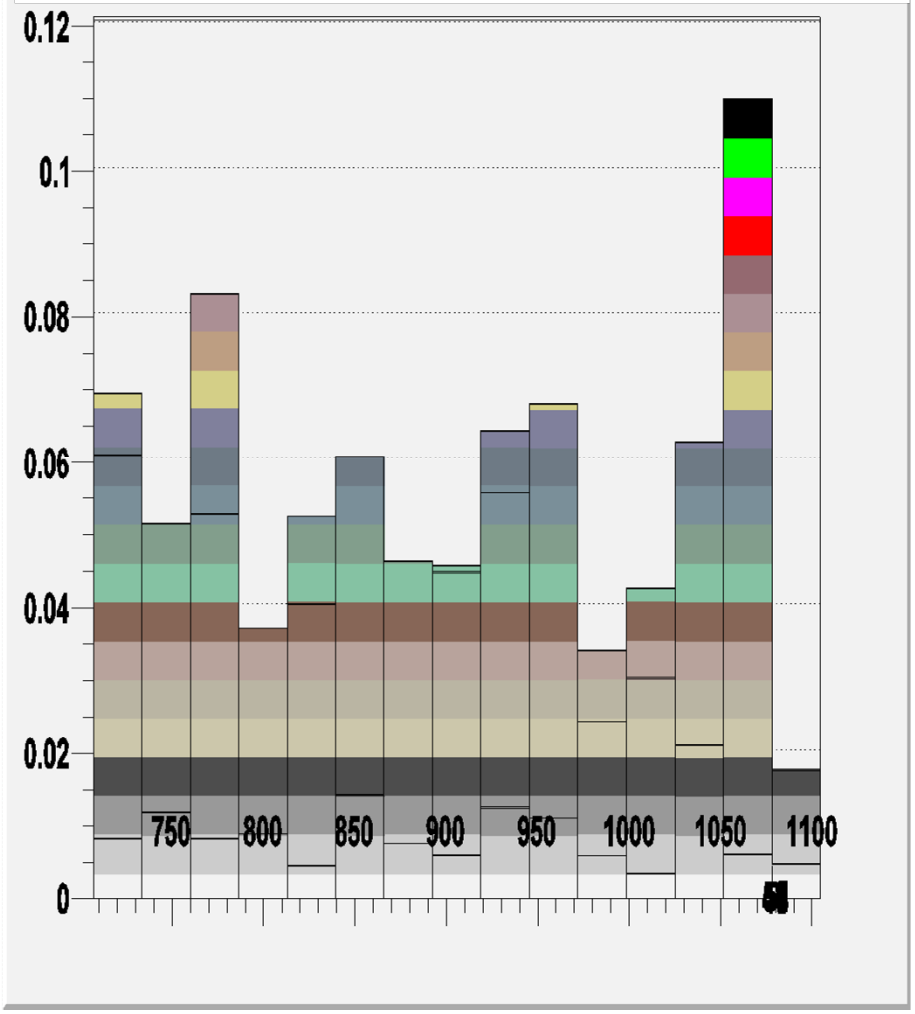
PEAK VALUES OF DEPOSITED ENERGY IS SC#1-7, SC#11-14

75<r<80 cm 80%B10+20%B11(4.10^5 events).

PEAK VALUES IN mW/gr(SC#1-7)



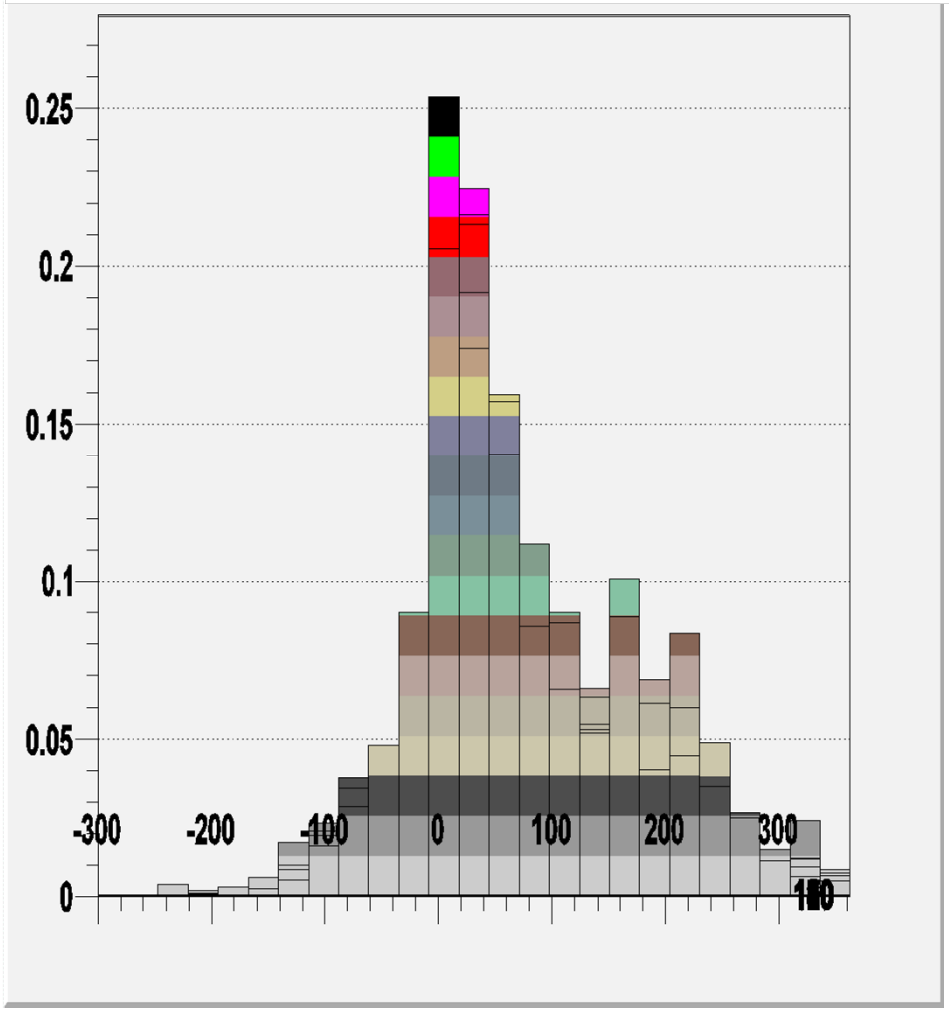
PEAK VALUES IN mW/gr(SC#11-14)



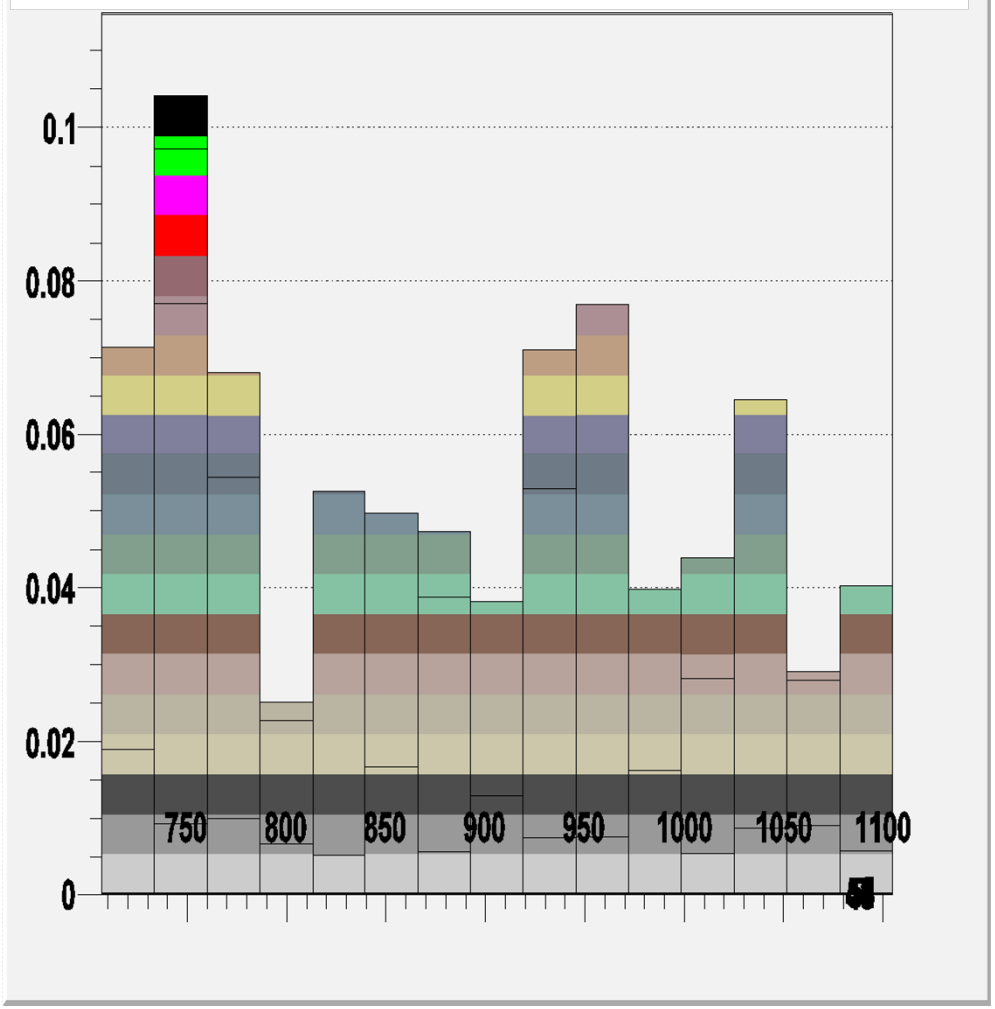
PEAK VALUES OF DEPOSITED ENERGY IS SC#1-7, SC#11-14

75<r<80 cm CADMIUM (CD)(4.10^5 events).

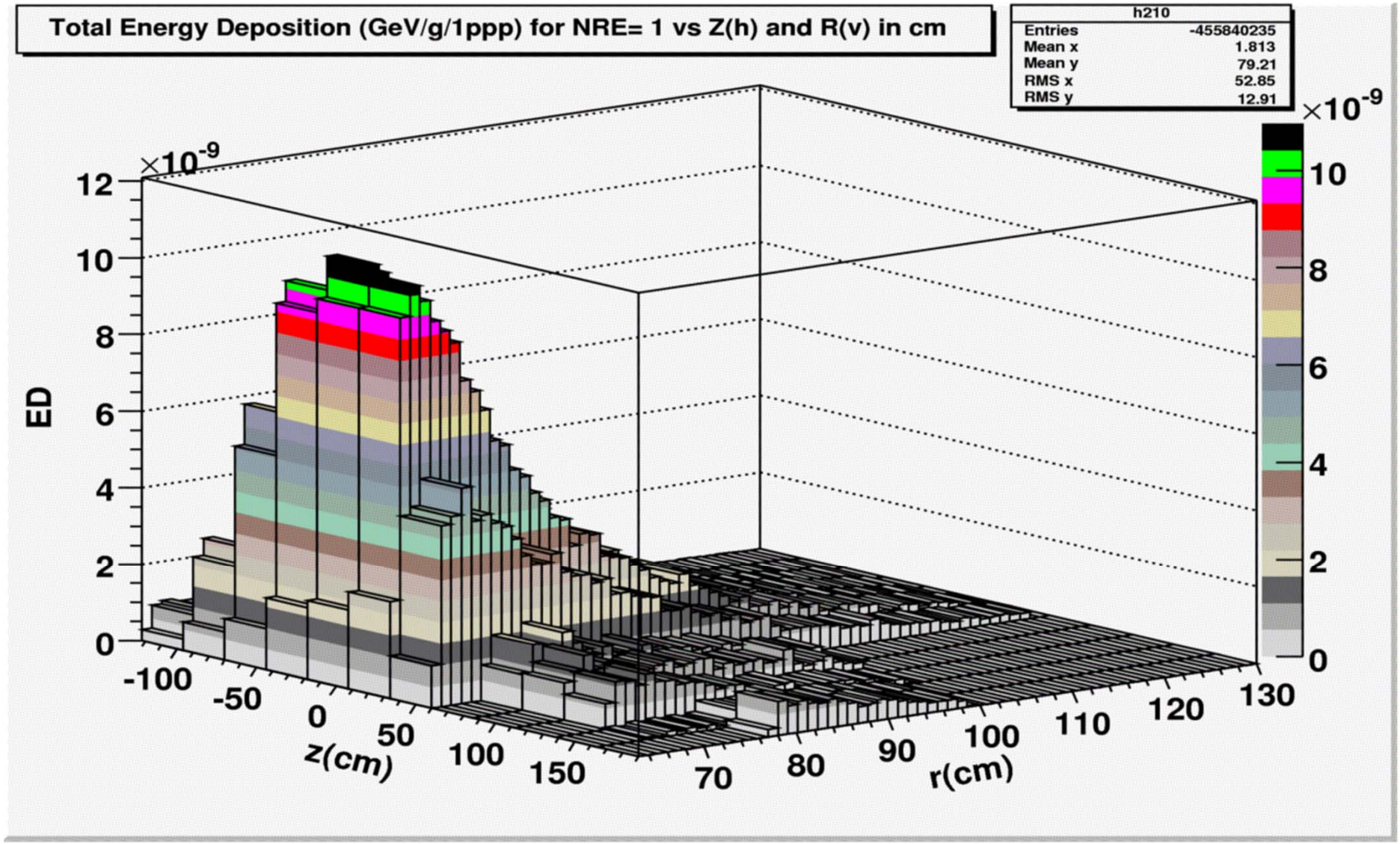
PEAK VALUES IN mW/gr(SC#1-7)



PEAK VALUES IN mW/gr(SC#11-14)

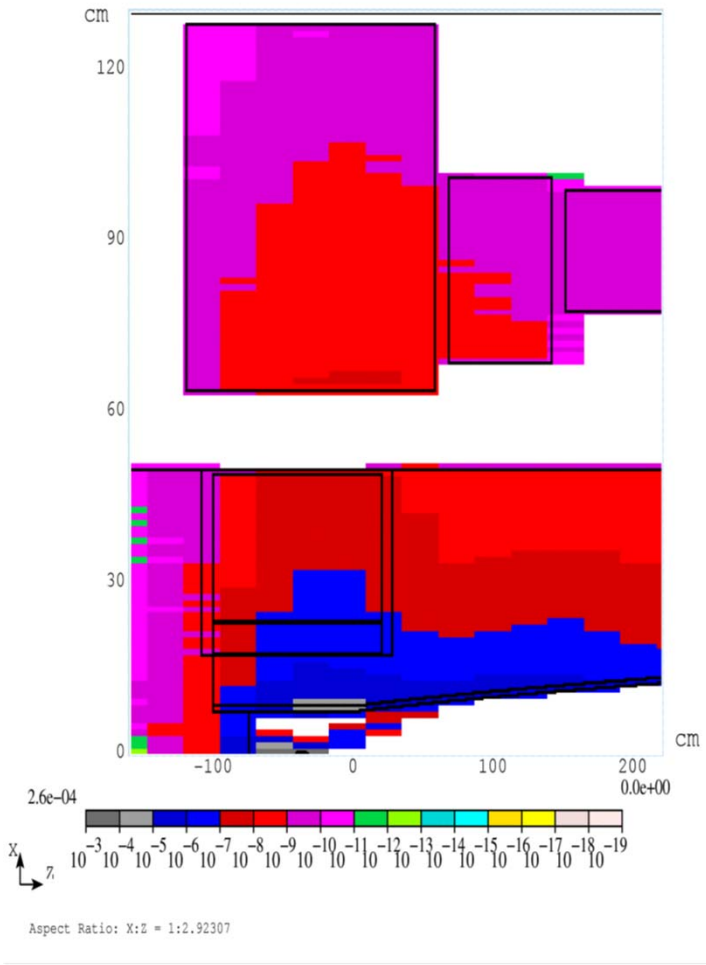


ADDITIONAL SLIDES

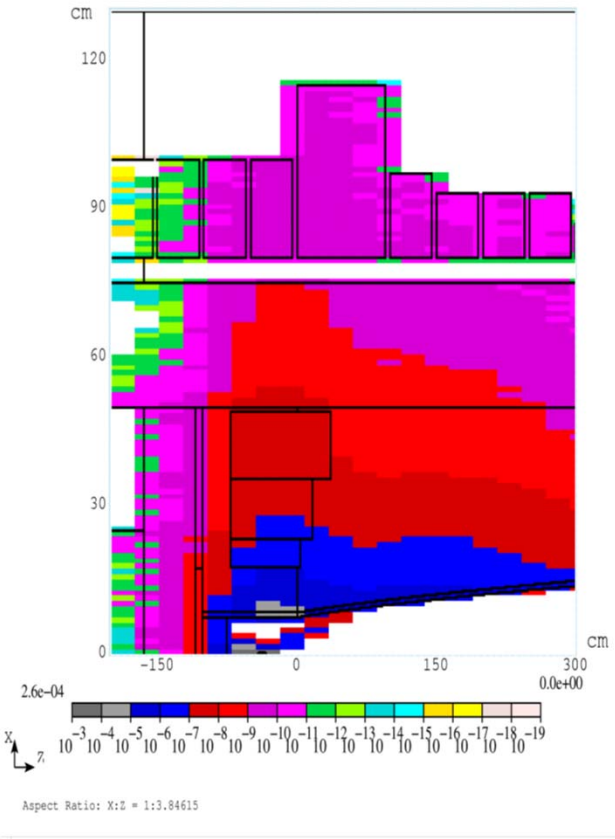


STUDY II GEOMETRY 3D ROOT PLOT OF DEPOSITED ENERGY FOR FIRST TWO SUPER-CONDUCTING SOLENOID:5.5 mW/gr ~(64.5<r<67.0 cm, -20.0<z<32.0 cm)

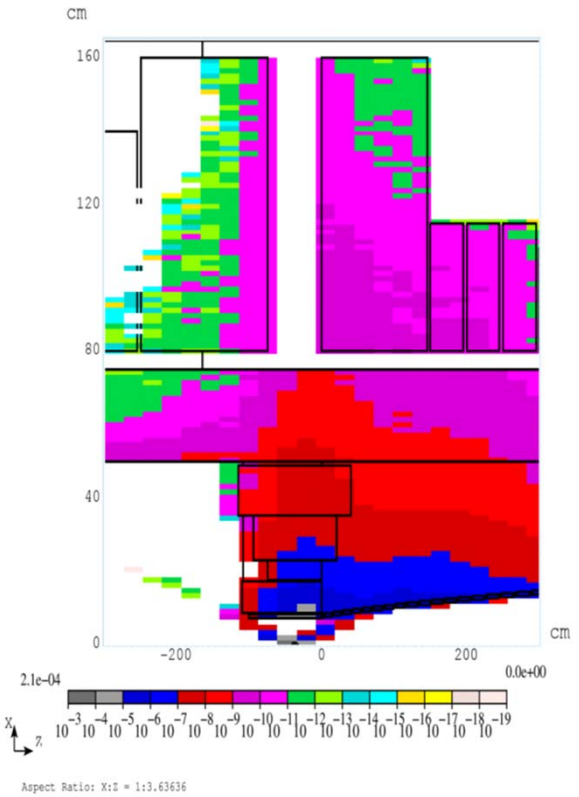
STUDY II



IDS80 IRON PLUG



IDS80 NO IRON PLUG



STUDY II PEAK VALUE: ~(5.5 mW/gr in -20.0<z<32.0 cm, 64.5<z<67 cm) SC#1

IDS80 PEAK VALUE: ~(0.36 mW/gr in -42.0<z<9 cm, 80<r<81.2 cm, 82.2<r<84.5 cm) SC#4

IDS80 NO IRON PLUG PEAK VALUE: ~(0.36 mW/gr -19.0<z<44.0 cm, 80.5<r<81.0 cm) SC#3