

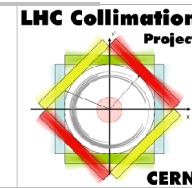
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# Status of energy deposition studies at IR7

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Collimation Meeting  
14-02-2005



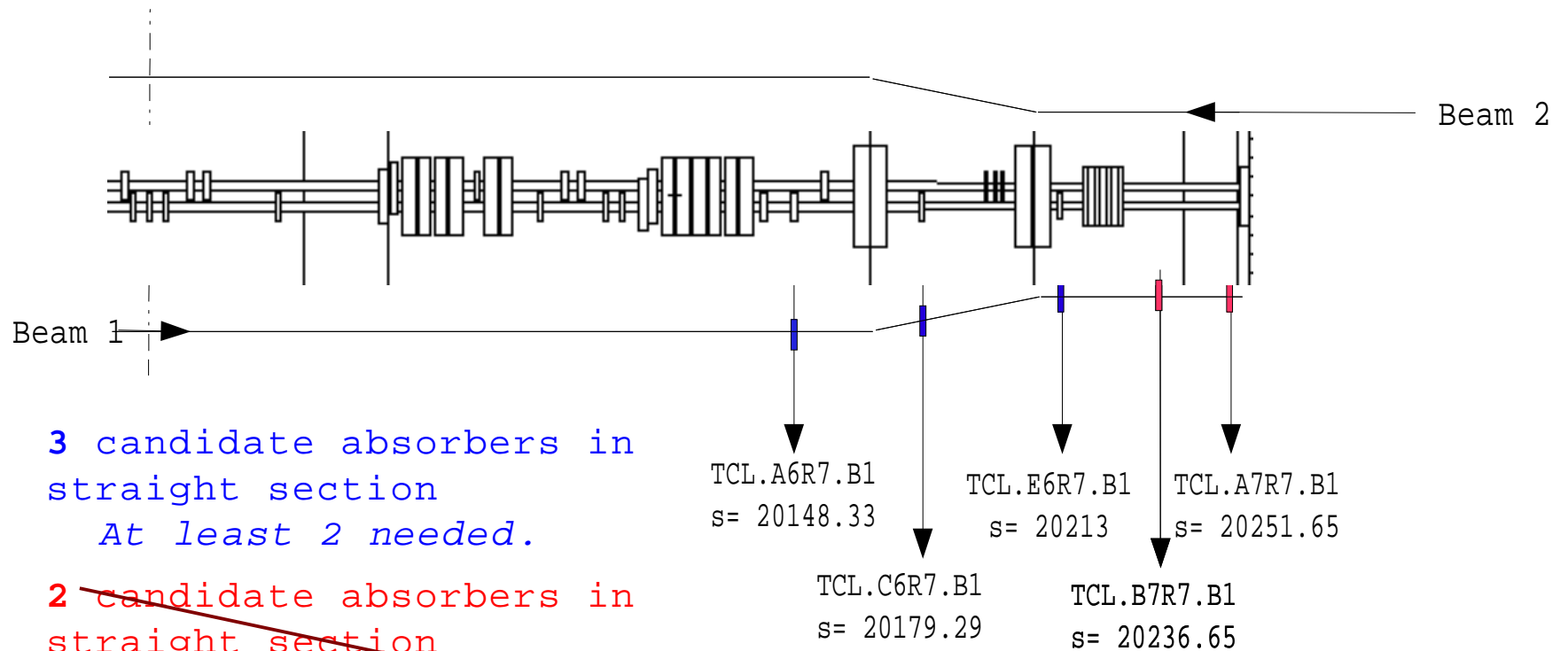
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# Implementation of vertical and horizontal absorbers.

## Studied locations



At most space for 1 !!

# Implementation of vertical and horizontal absorbers.

**B7** is discarded, NO SPACE

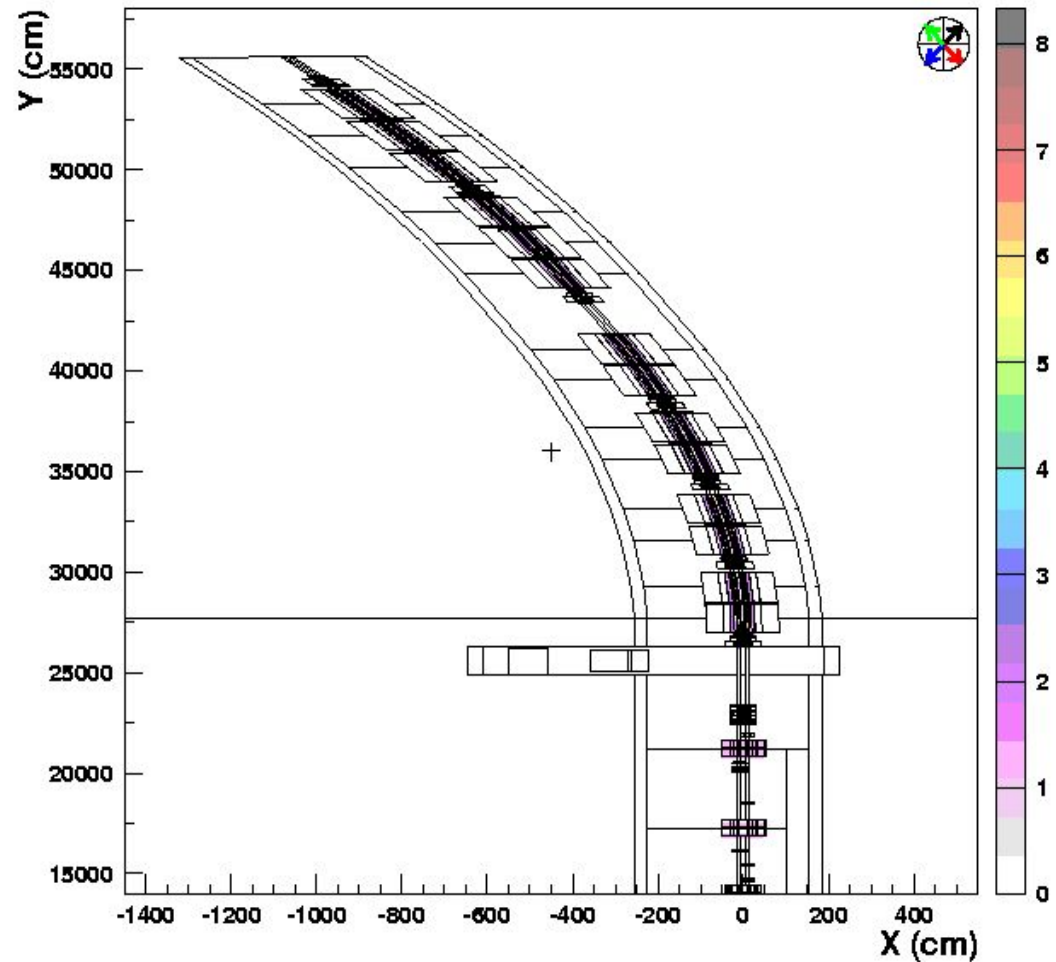
**A7** was moved on 31<sup>st</sup> January to 20243.94 m  
(24978.1 cm from IP7) --> **A7'**

**A7'**new was moved on 7<sup>th</sup> February to 20232.1 m!  
(23794.3 cm from IP7) --> **A7''**

Simulations are implemented but NOT yet  
running with the last position.

# IR7 curved region.

- Tunnel, pipes, etc have been chopped, rotated and merged.
- Prototypes are allocated with the according rotation.
- The dipole is made of four straight sections, to accommodate the trajectory.



# Energy deposition for considered configurations

$N_{abs}$	% Beam	A6 <sub>v</sub>	C6 <sub>h</sub>	E6 <sub>v</sub>	B7 <sub>v</sub>	A7 <sub>h</sub>	MQTL	MB	MQ
0	1.5	-	-	-	-	-	330	?	?
2	55	-	1190	208	-	-	1.6	?	?
3	55	2360	413	75	-	-	1.8	9	2.5
3	Y	-	1190	208	-	?	1.6	?	?
4	200	2360	413	75	-	50	1.8	2.5	2
4	Y	-	1190	208	?	?	1.6	?	?
5	200	2360	413	75	9	44	1.8	1.8	2.1

Table 1: Results of energy deposition in sensitive areas of IR7 for different absorbers. Units are  $W$  and  $\frac{mW}{cm^3}$  for COIL<sub>den</sub>, MB and MQ.

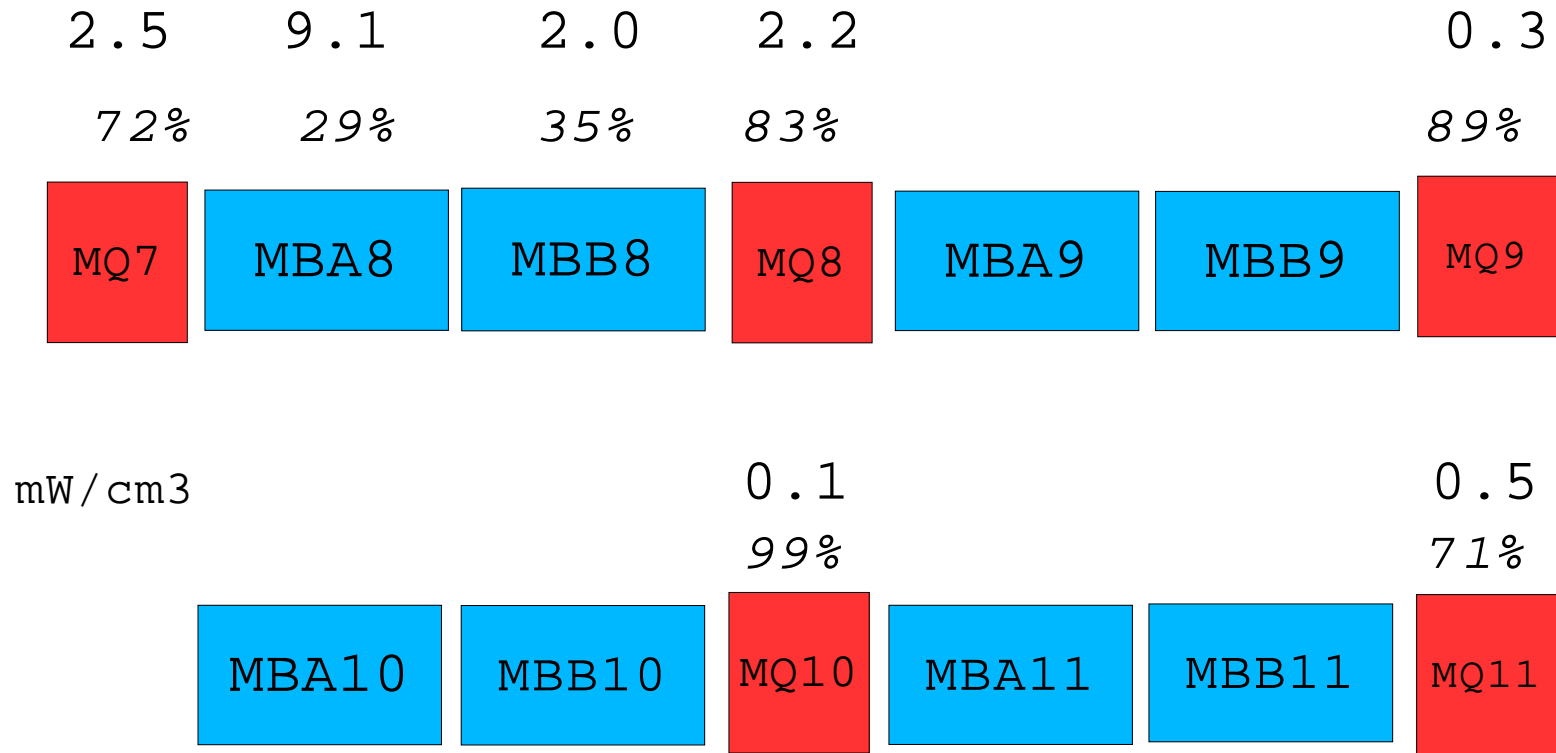
# Energy deposition for last simulated configurations

$N_{abs}$	% Beam	A6 <sub>v</sub>	C6 <sub>h</sub>	E6 <sub>v</sub>	A7 <sub>h</sub> '	MQTL	MB	MQ
0	1.5	-	-	-	-	330	?	?
2	55	-	1190	208	-	0.69	?	?
3	55	2360	413	75	-	0.37	9	2.5
3	Y	-	1190	208	?	0.69	?	?
4	200	2360	413	75	20	0.37	1.4	1.3

Table 1: Results of energy deposition in sensitive areas of IR7 for different absorbers. Units are  $W$  and  $\frac{mW}{cm^2}$  for COIL<sub>den</sub>, MB and MQ.

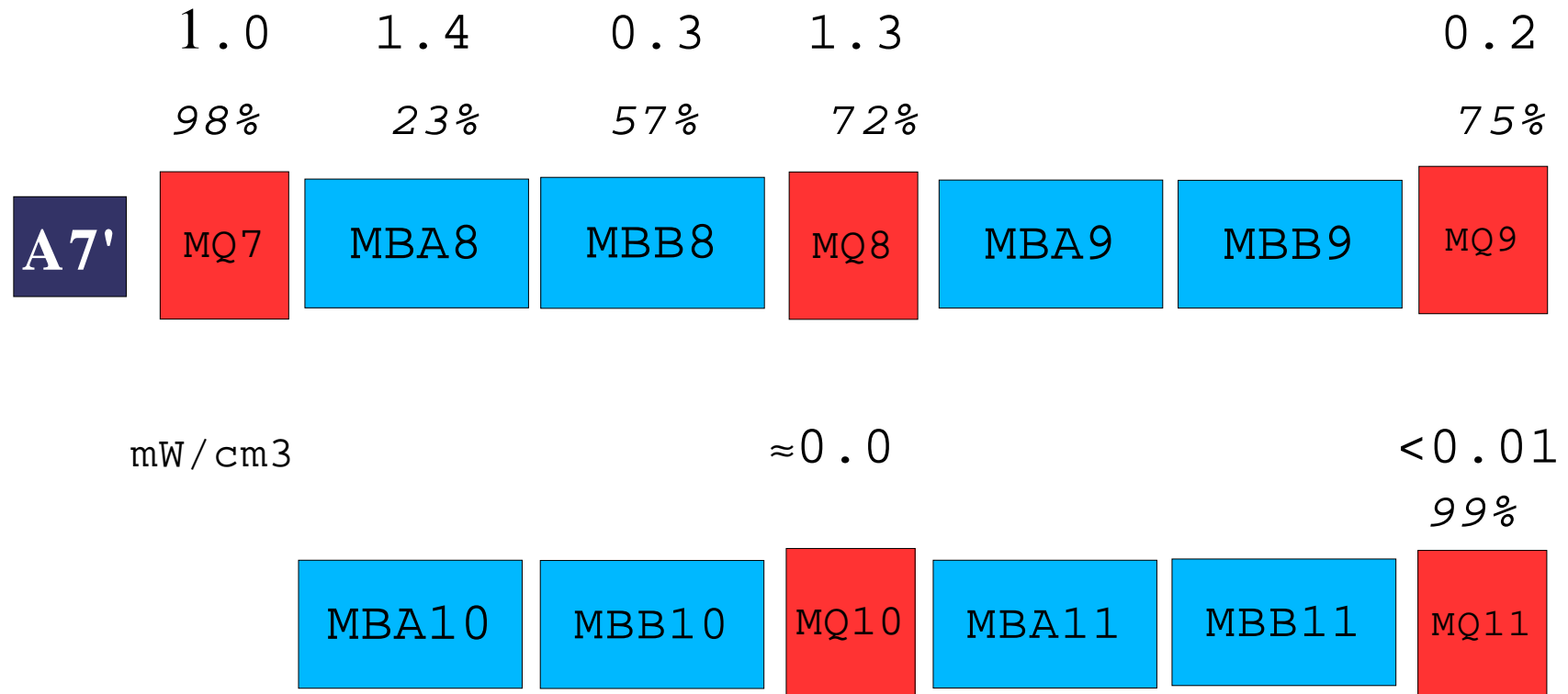
# Energy deposition along the curved section.

3 abs. in straight section, **No** abs. for curved section



# Energy deposition along the curved section.

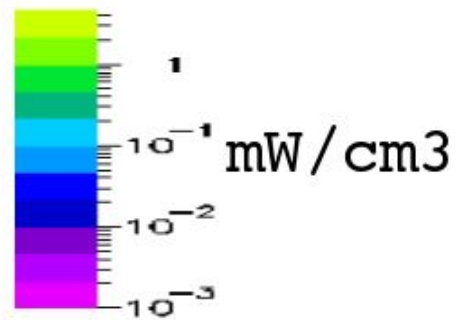
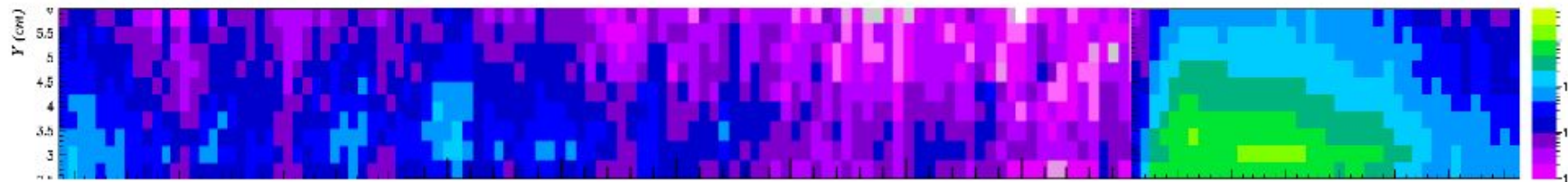
3 abs. in straight section, 1 abs. for curved section.





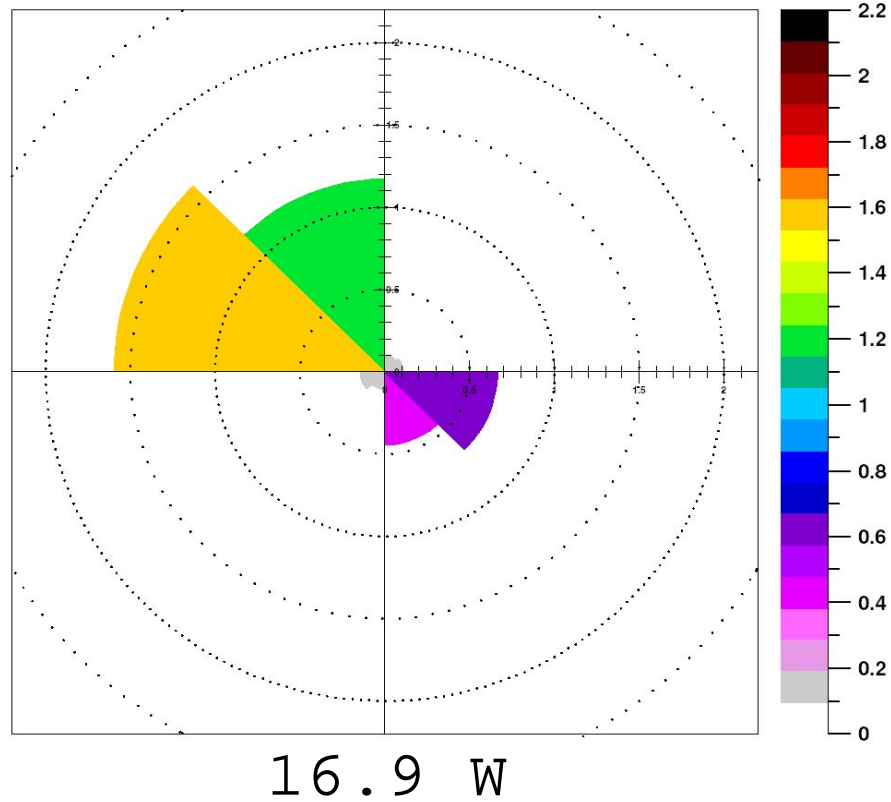
# Radiation on the MBA8

3 abs. in straight section, 1 abs. for curved section

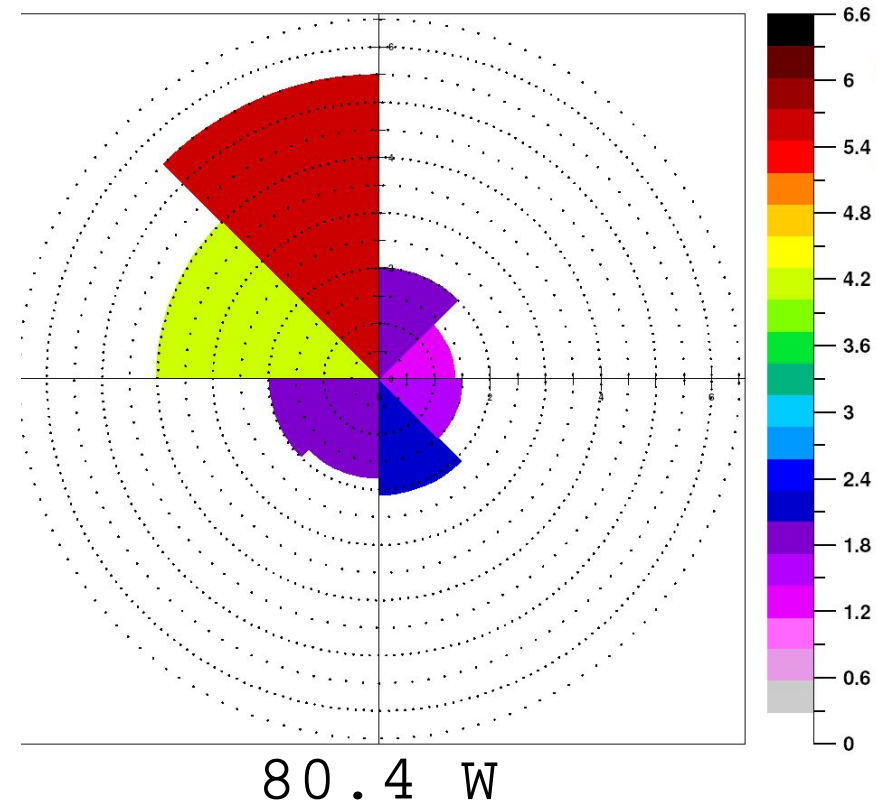


# Heat in the finger collar of the TCSGA6L1

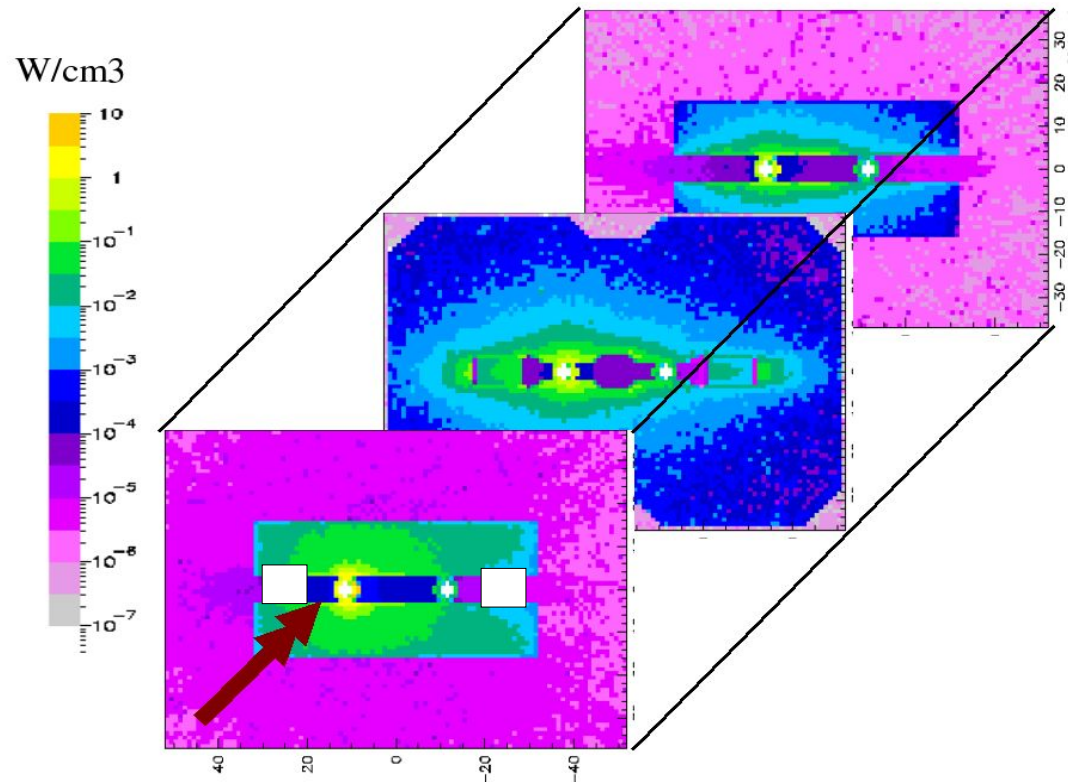
Front RF Fingers TCSG.A6L7.B1



Back RF Fingers TCSG.A6L7.B1



# Heat in the MBWB6L, 3.6\*E11 p/s in IR7



Power in the MBW:  
Beam 1            3.85 kW  
Beam 2            0.12 kW

Average power in  
the insulators:  
min            18.9 mW/cm<sup>3</sup>  
Max (\*)       37.7 mW/cm<sup>3</sup>

(\*) All energy concentrated in one insulator