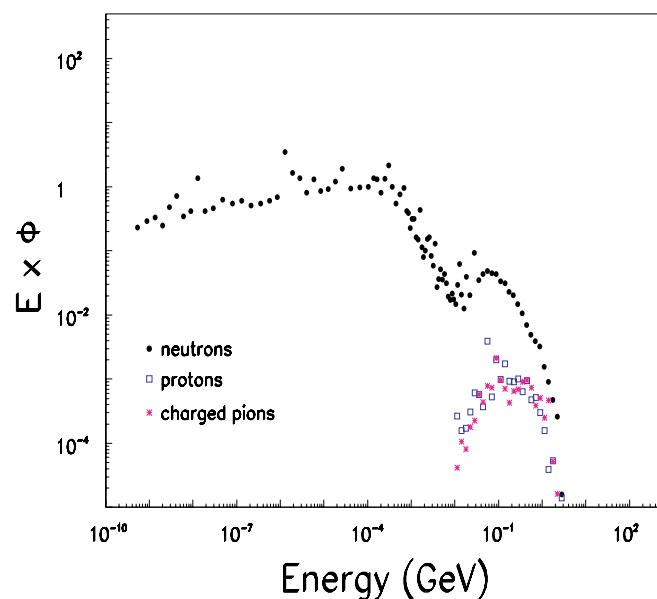


Particle spectra in the TCC2 area

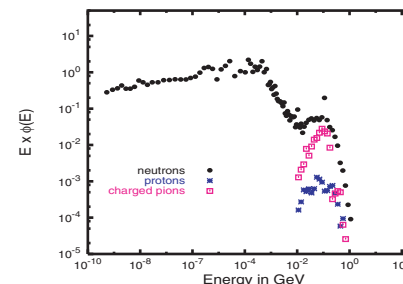
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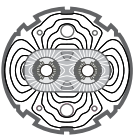
Typical example of particle spectra found in TCC2 test area.



(scoring bin 80-120cm from quadrupole edge,
40-80cm above floor, 1-2m behind beam dump)

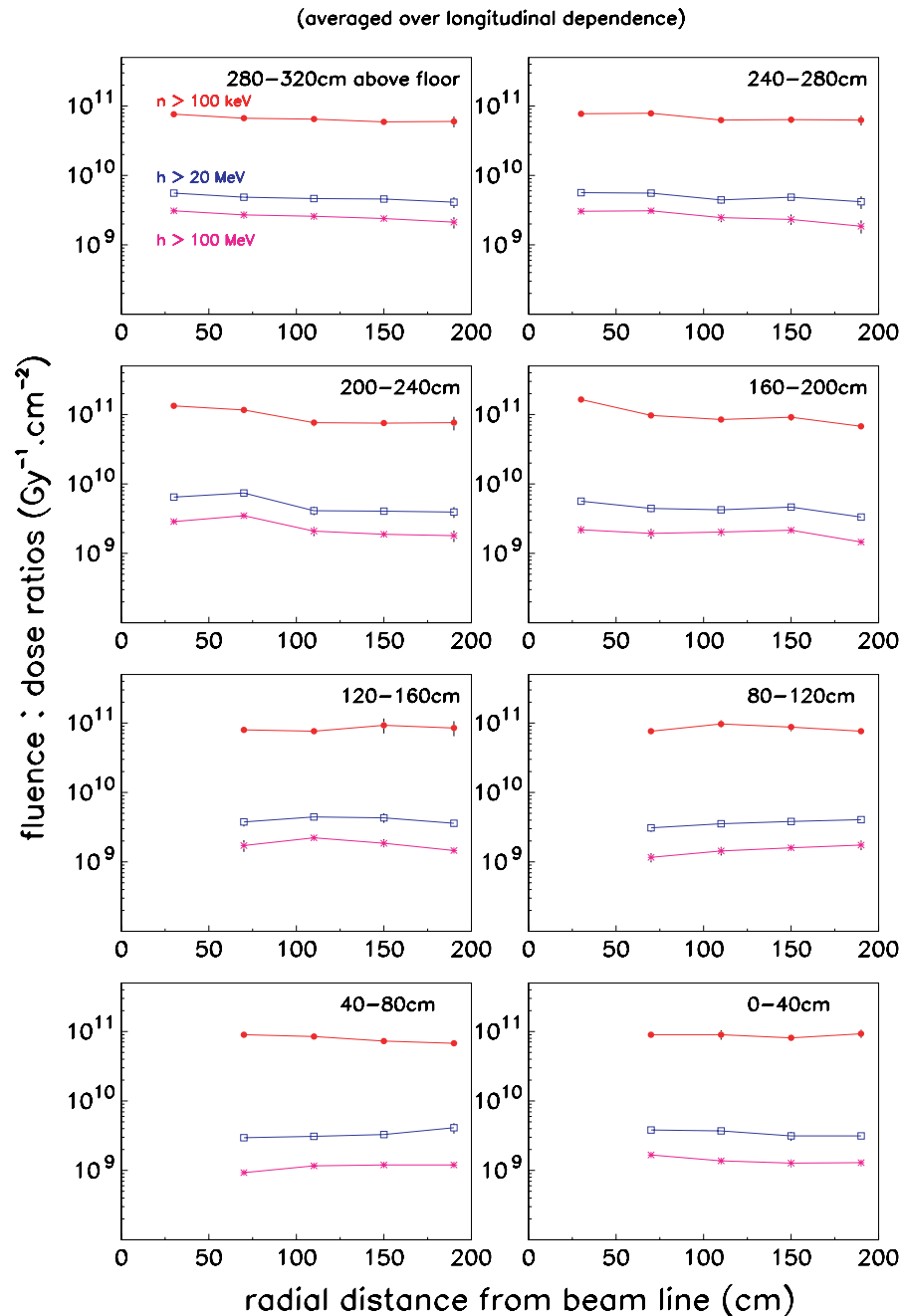
- Very little variation is seen in the particle spectra over the entire test area region (1-4m behind dump, all radial and height bins) .
- Is large proportion of low energy neutrons (due to presence of concrete walls & floor)
- Still have significant contribution from high energy neutrons & hadrons (> 5 MeV)
- Deviation in spectra seen for high scoring bins at large radial distances immediately behind beam dump -> excess of charged pions





Fluence : Dose ratios in test area

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No radial dependence of R(TCC2)

neutrons > 100 keV
hadrons > 20 / 100 MeV

bulk damage in Si
SEU's

R(TCC2):

neutrons > 100 keV
hadrons > 20 MeV
hadrons > 100 MeV

$8 \times 10^{10} \text{ n/Gy cm}^{-3}$
 $4 \times 10^9 \text{ h/Gy cm}^{-3}$
 $2 \times 10^9 \text{ h/Gy cm}^{-3}$