

Comparison of Radiation Maps with Flux Return and New FF Vacuum Structure

Alex Jentsch (BNL)

Background Taskforce WG Meeting

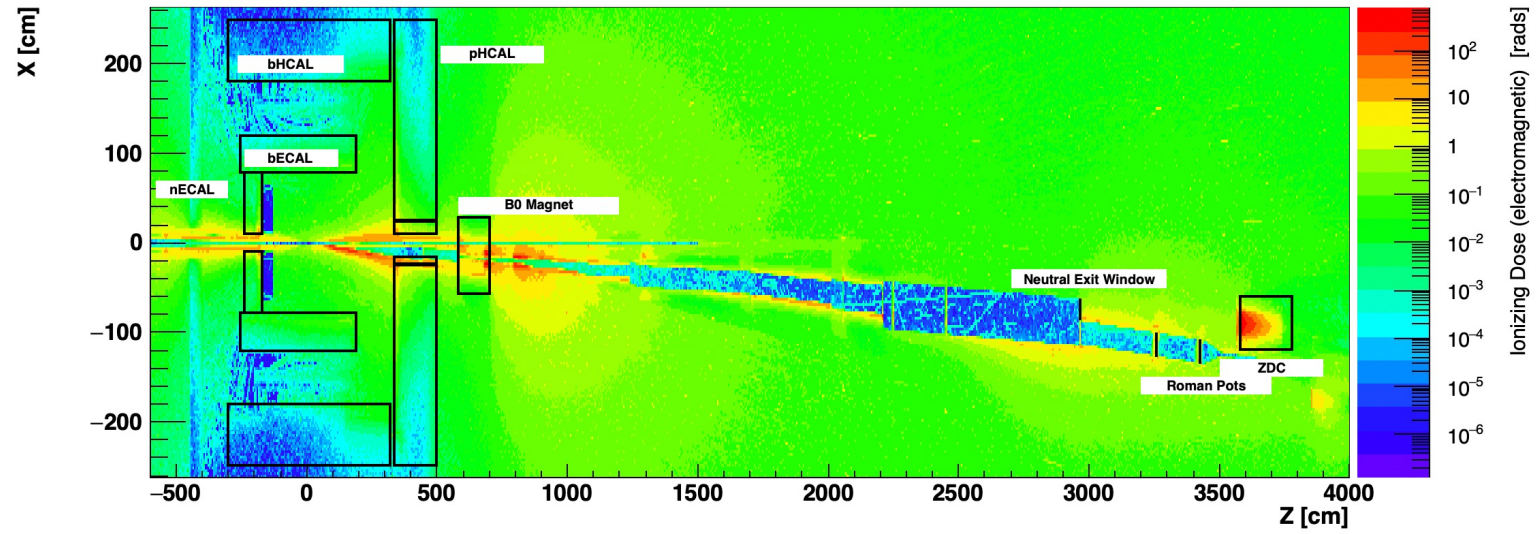
April 23rd, 2024

Preliminaries

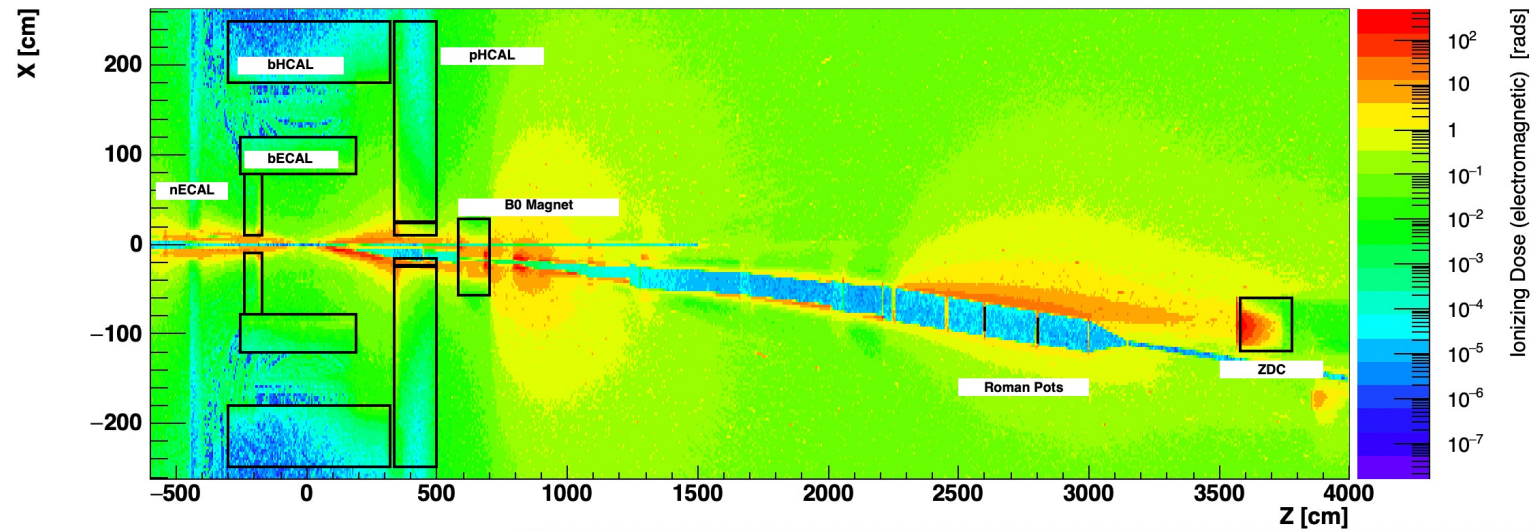
- Current radiation maps on the Wiki still reflect the old geometry.
 - Old FF beam pipe, no exit window.
 - No flux returns on barrel or forward side.
- New studies performed using updated geometry.
- Note: all studies are now shown scaled per fb^{-1} .
 - To obtain old “6 months @ 60% efficiency”, simply multiply plots by 100.

Ionizing Dose - EM

New Geometry

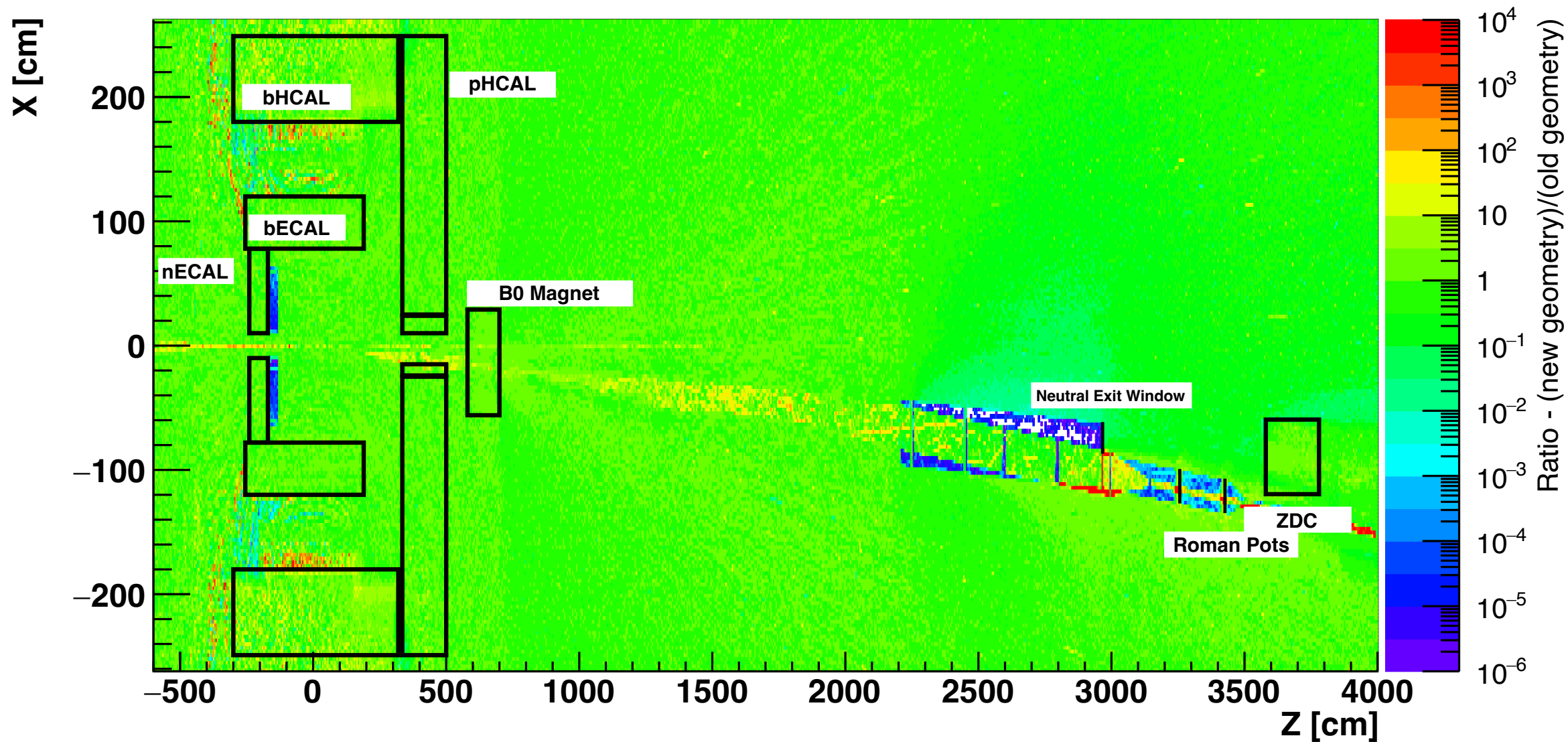


Old Geometry



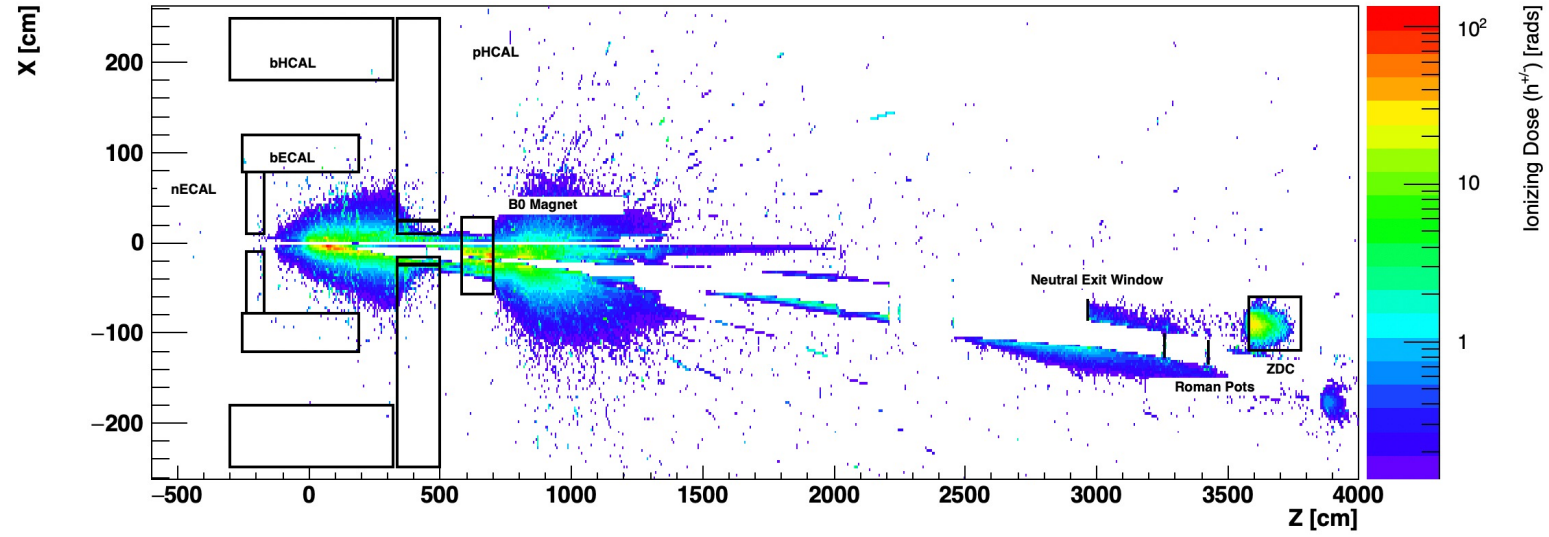
Ionizing Dose - EM

Ionizing Dose (electromagnetic)

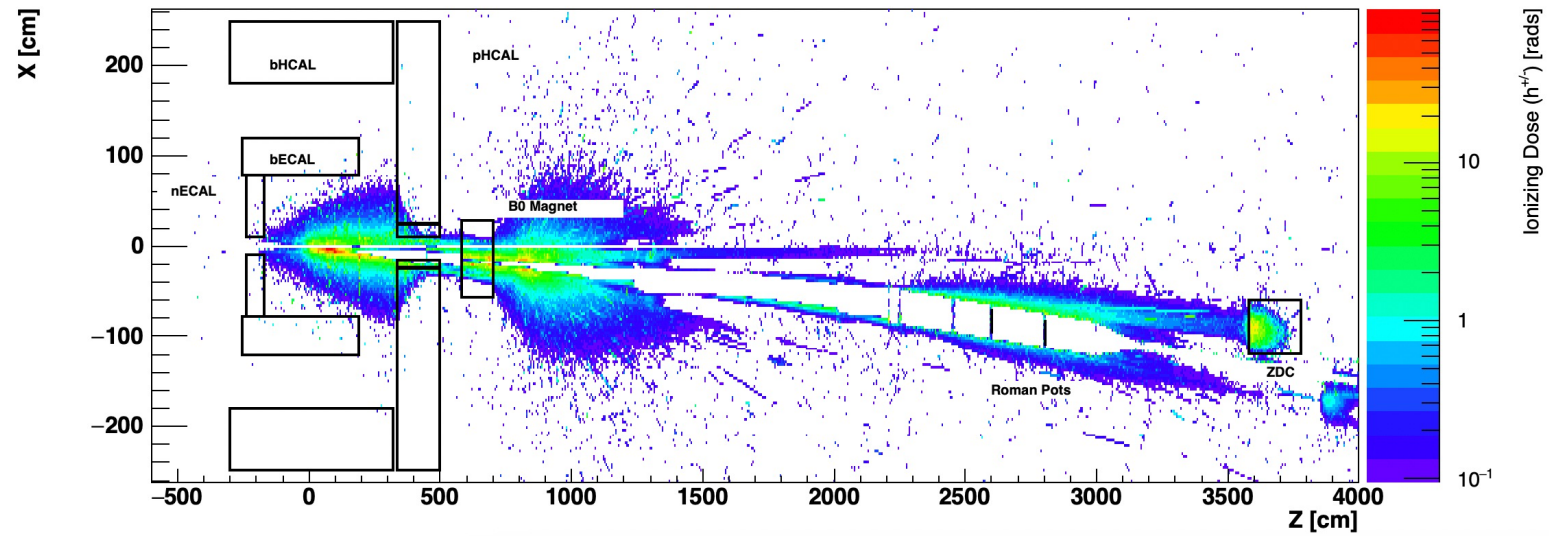


Ionizing Dose – $h^{+/-}$

New Geometry

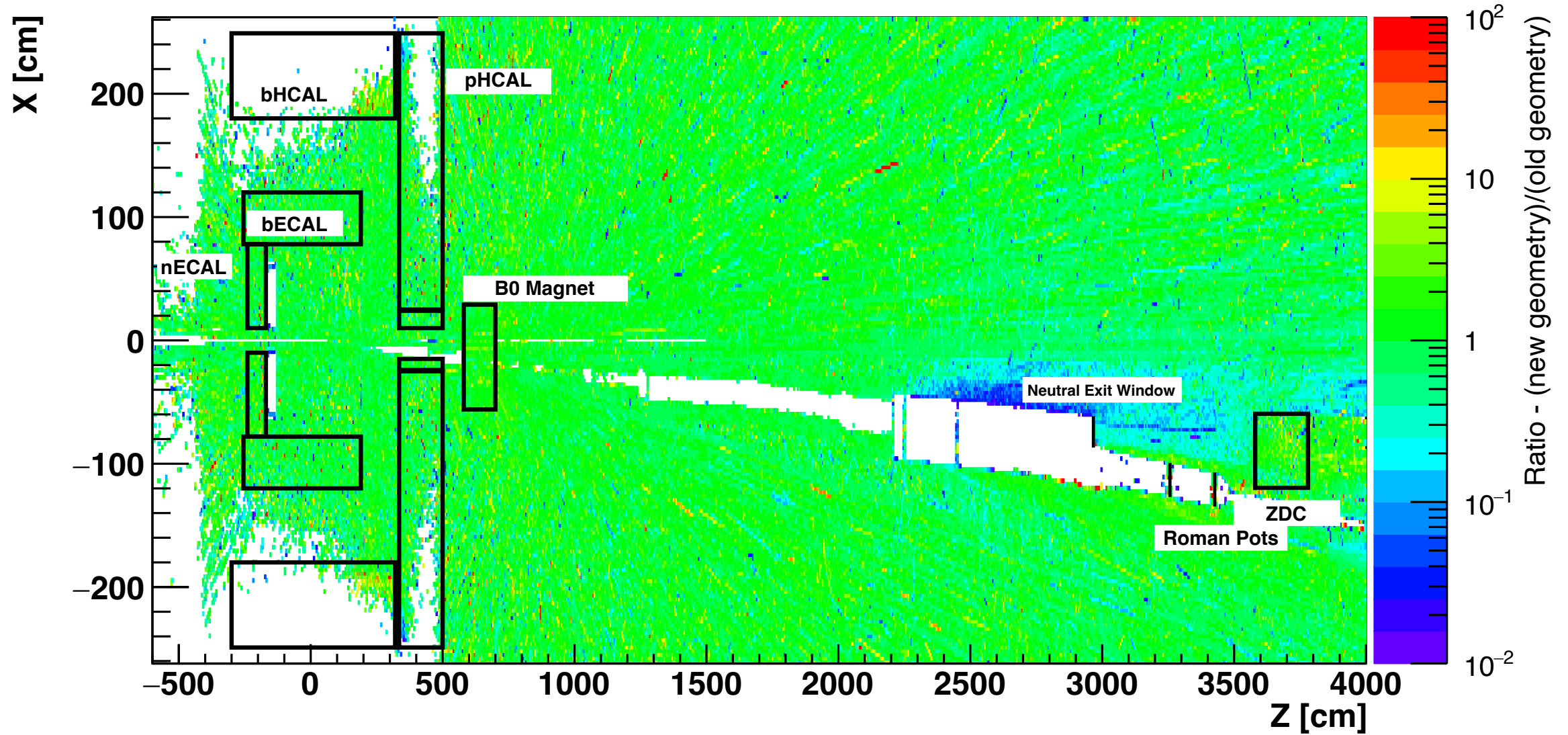


Old Geometry



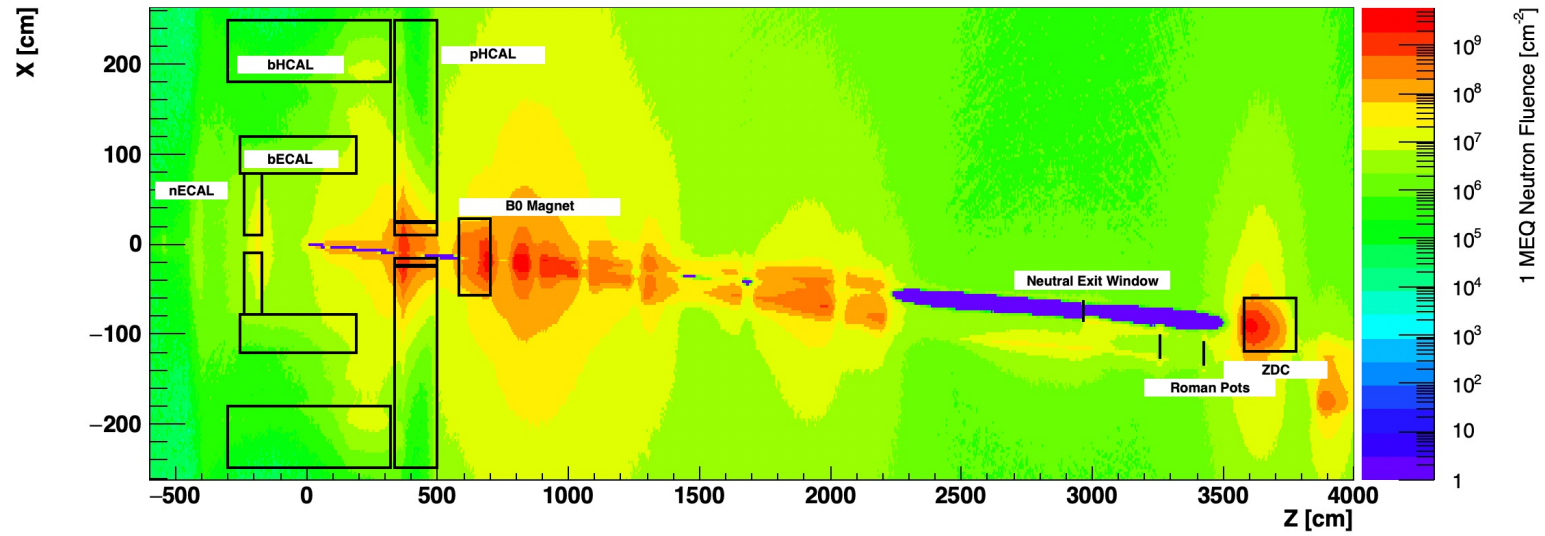
Ionizing Dose – $h^{+/-}$

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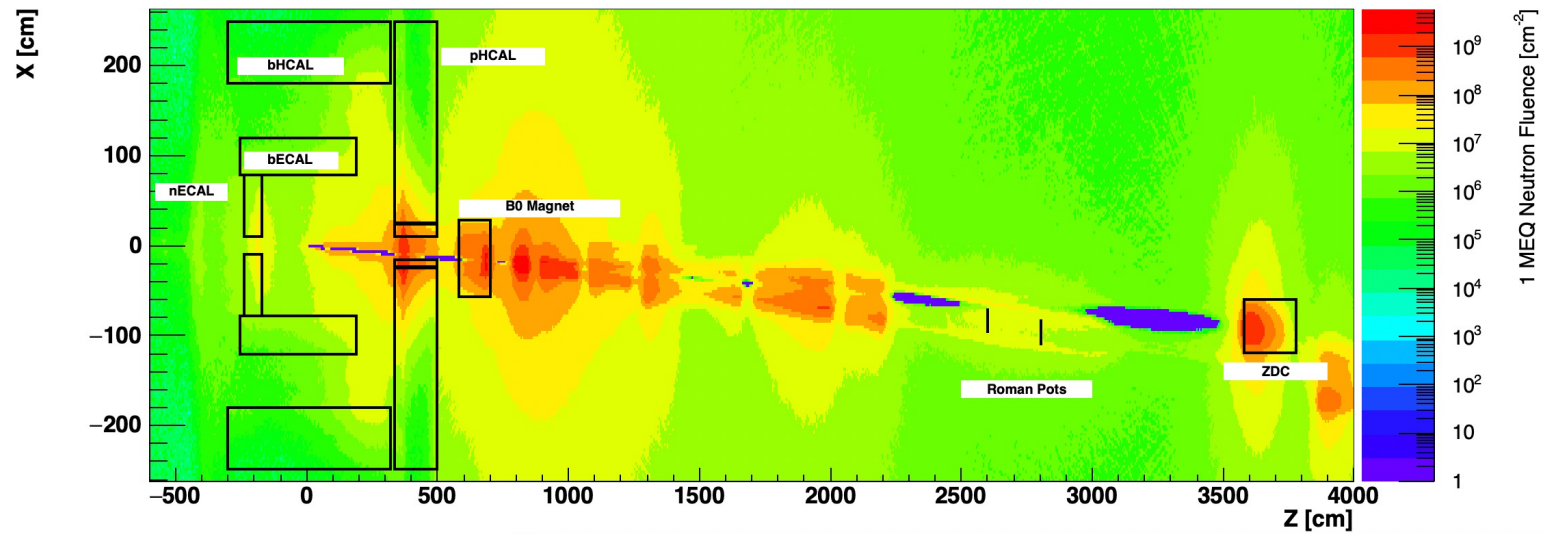


1 MEQ neutron fluence

New Geometry

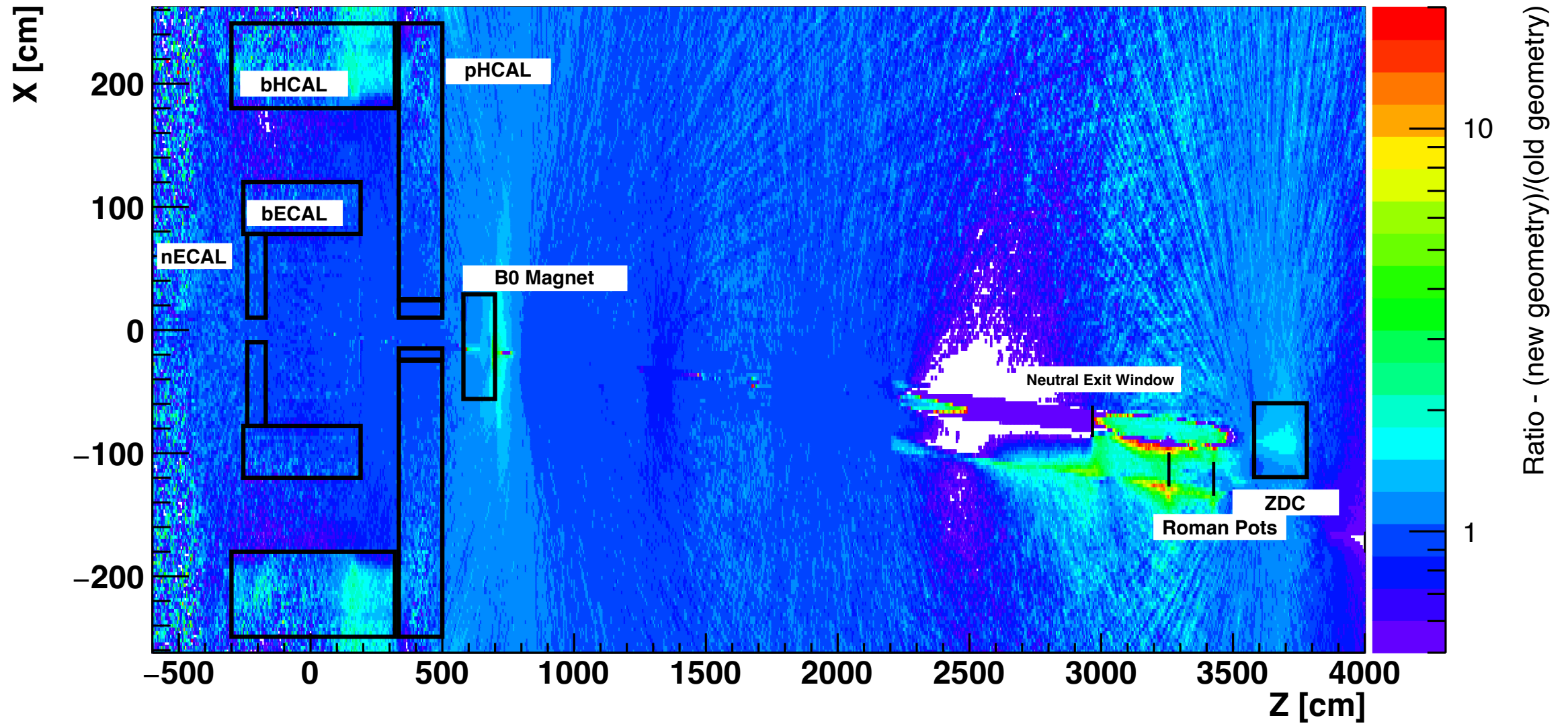


Old Geometry



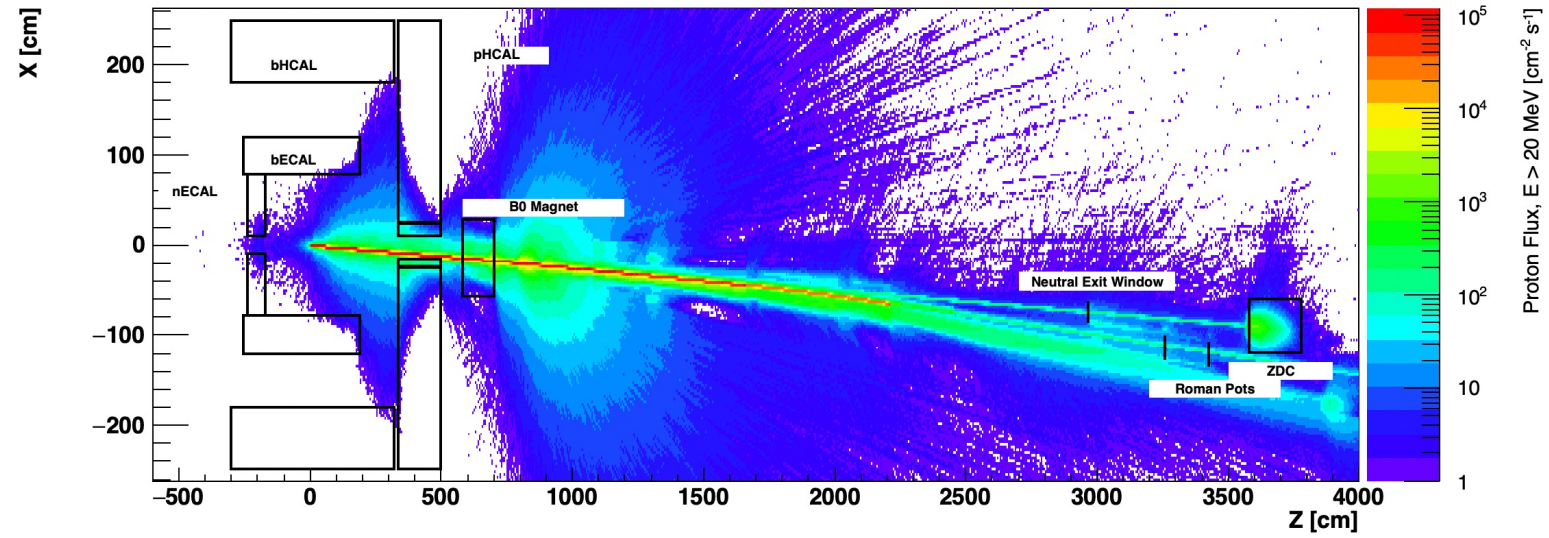
1 MEQ neutron fluence

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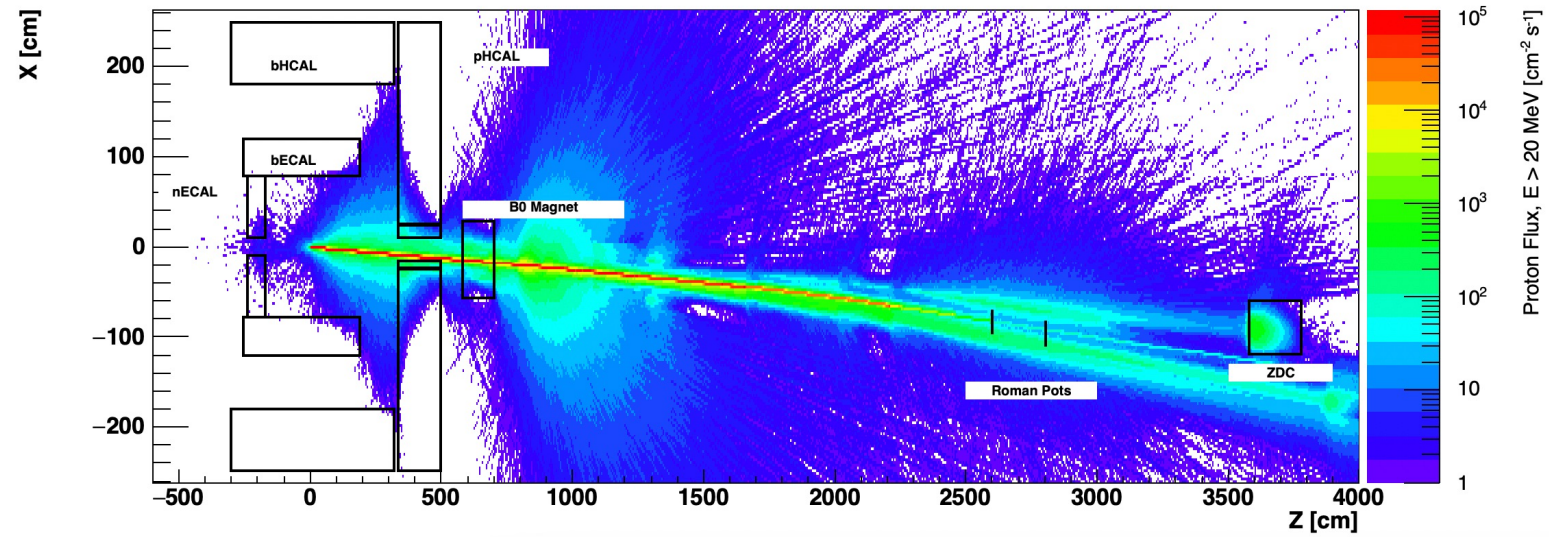


Proton Flux, $E > 20$ MeV

New Geometry

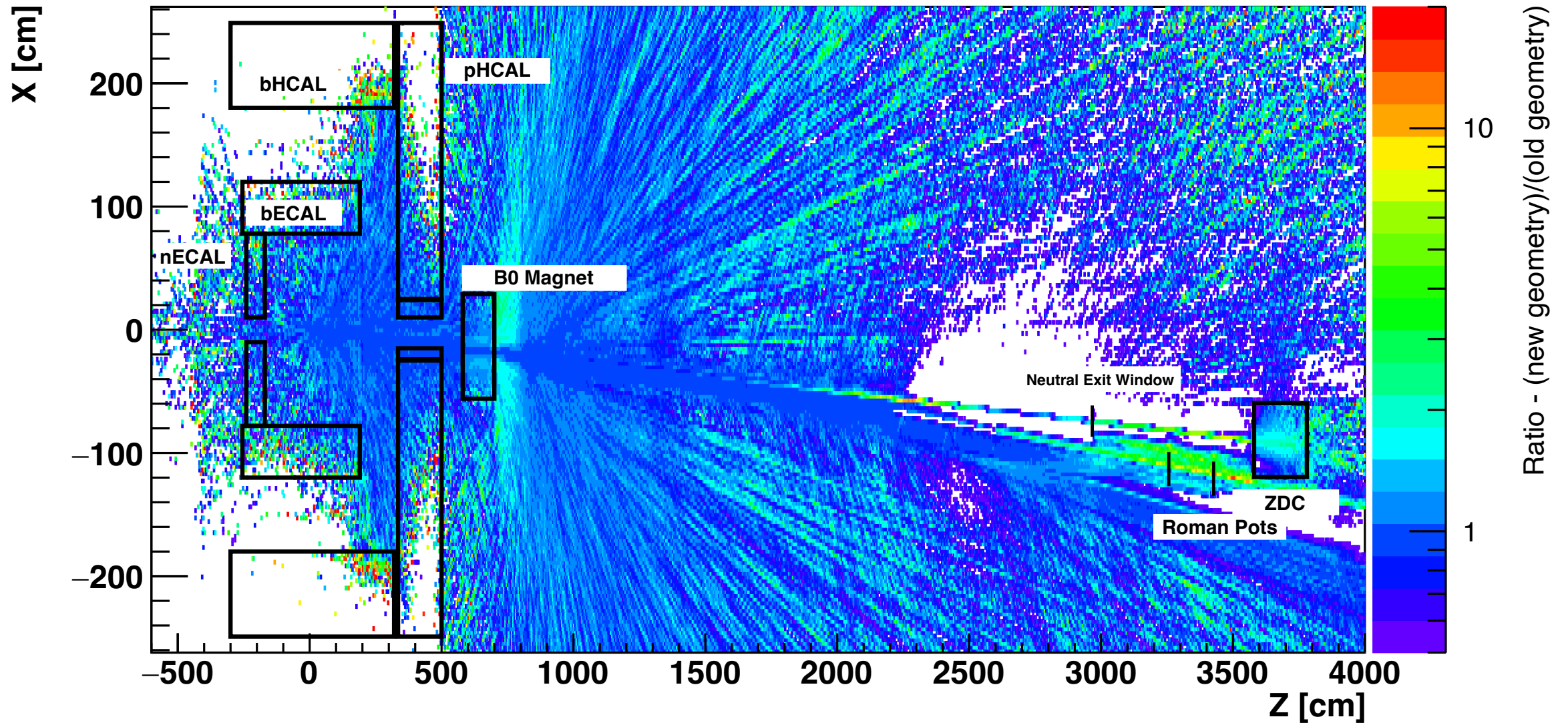


Old Geometry



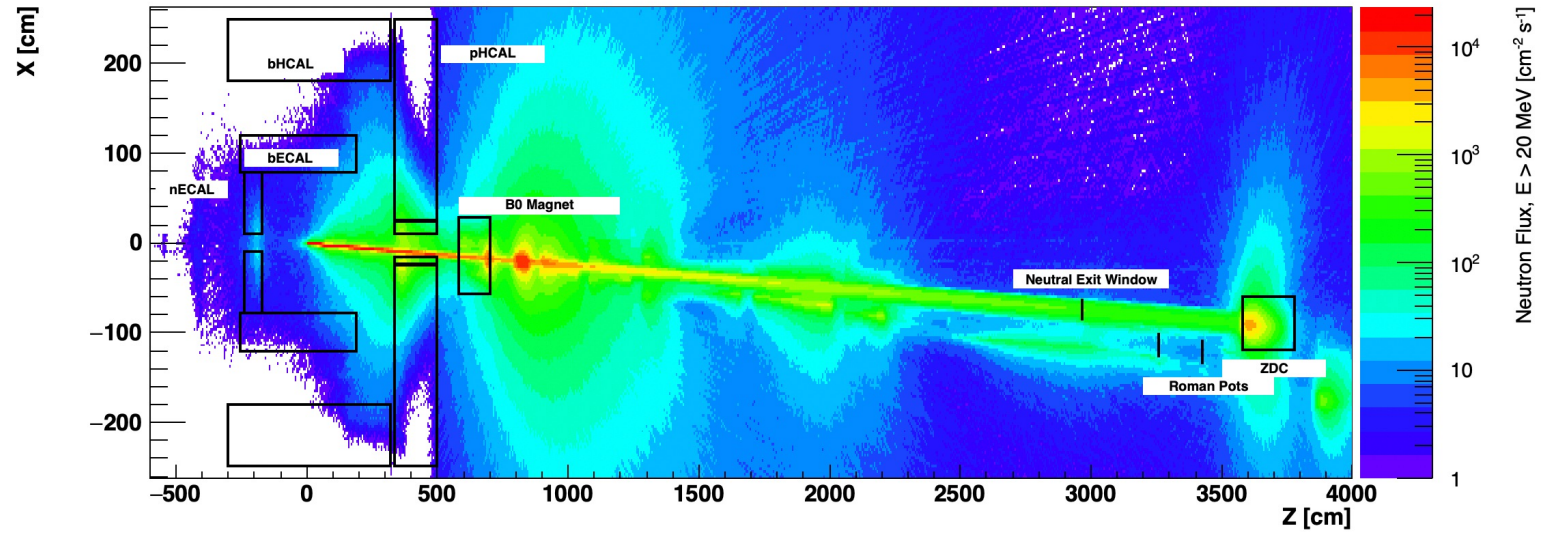
Proton Flux, $E > 20$ MeV

Proton Flux - $E > 20$ MeV

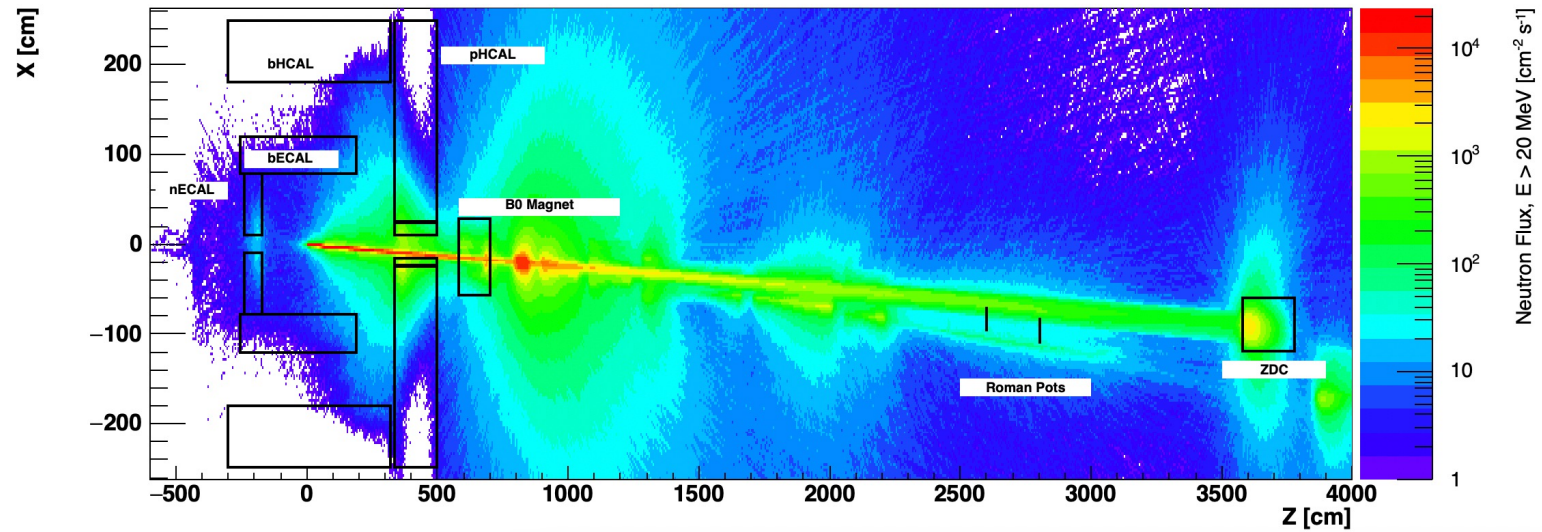


Neutron Flux, $E > 20$ MeV

New Geometry

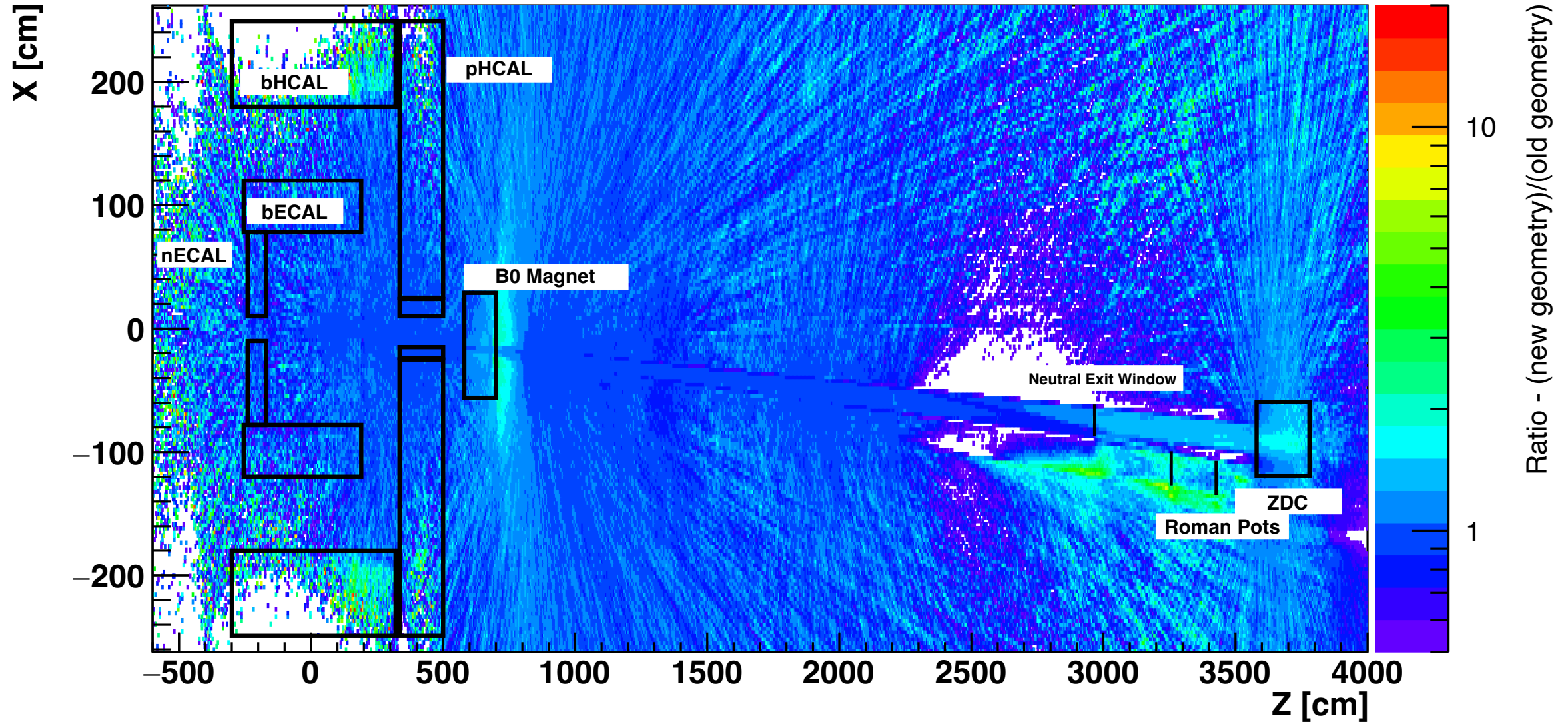


Old Geometry



Neutron Flux, $E > 20$ MeV

Neutron Flux - $E > 20$ MeV



Summary

- Geometry changes will require subsequent re-analysis of radiation maps.
- FF beam pipe has fairly large impact on fluences, especially in the ZDC and in the support structure around the silicon detectors.
- Wiki will be updated with new results soon.