

# High-Power Photon Collimator

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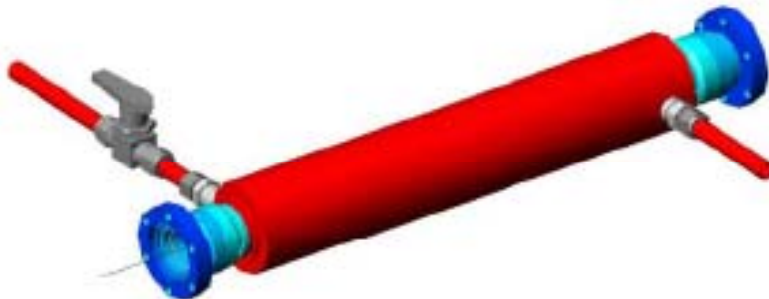
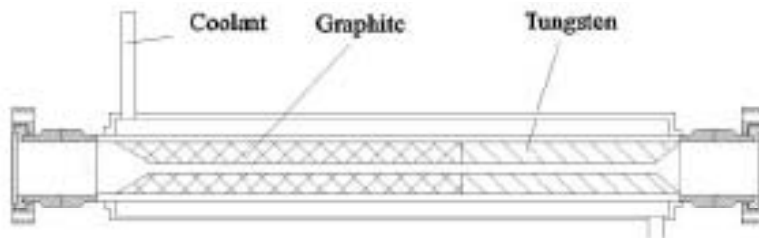
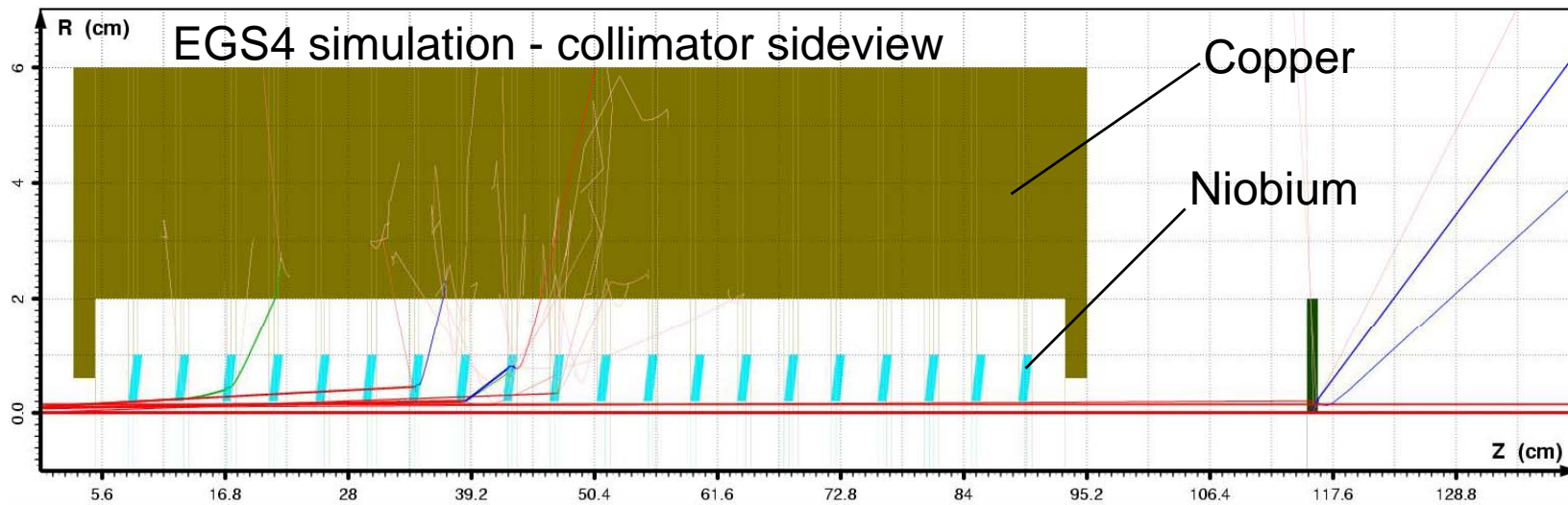
Part of EUROTeV: WP4 (polarised positron source) PTCO task



Zeuthen Positron Source Meeting



# Photon Collimator Introduction



## Purpose of collimator

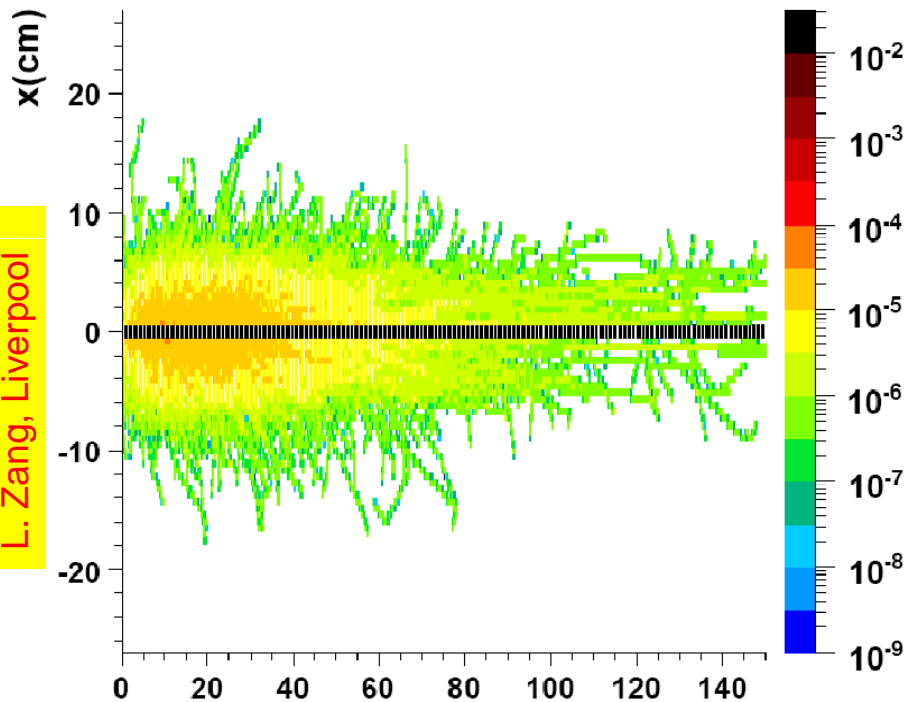
- Scrape beam
- Adjust beam polarisation (upgrade)

A. Mikhailichenko, Cornell

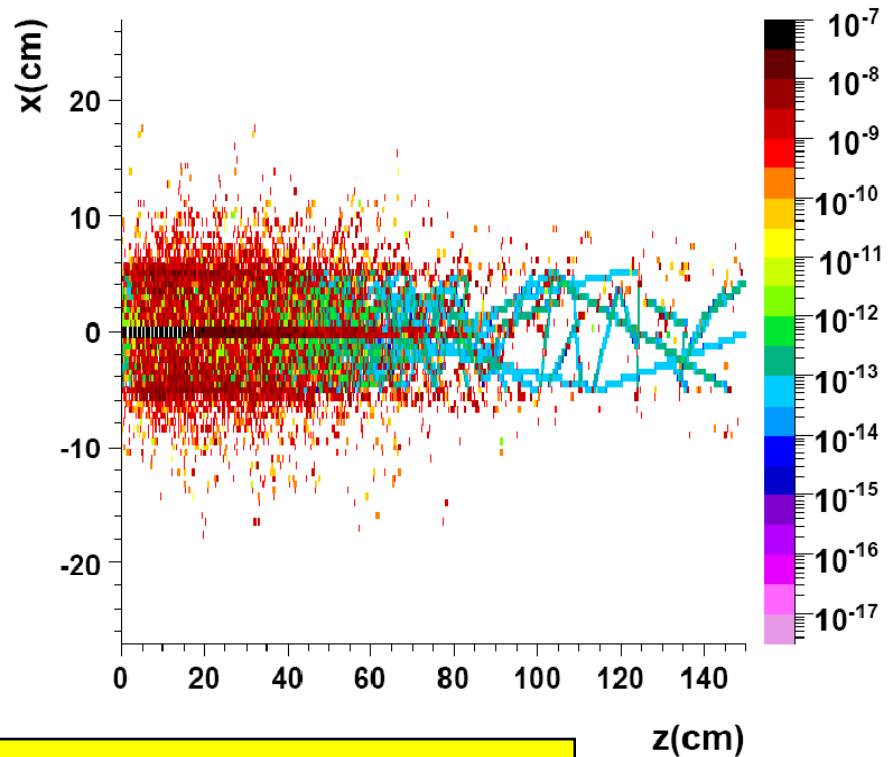
N. Golubeva and V. Balandin, DESY

# FLUKA Photon Collimator Simulations

Photon fluence  
(per primary photon)



Energy deposition  
(GeV per primary photon)



L. Zang, Liverpool

Initial simulations presented at LCWS 07.

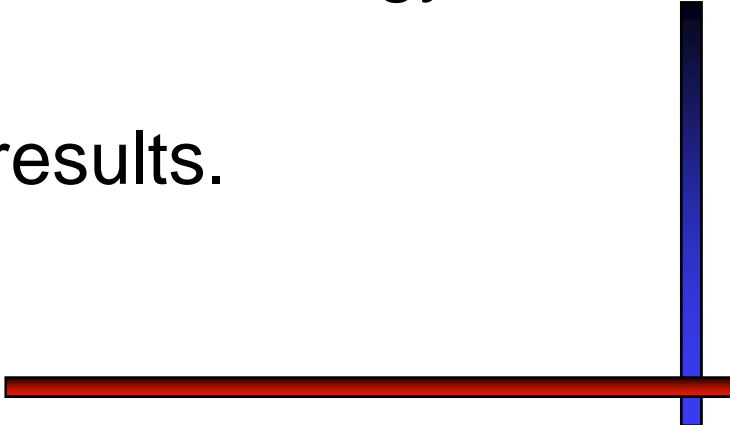
Too much energy deposition in spoiler in current geometry.

Now looking more closely at photon spectrum.

Liverpool PhD student to attend FLUKA course at CERN in June.



# Current Study

- Idea is to see how effective collimator is once a realistic photon spectrum is used.
  - Ties in closely with work being carried out by N. Ryder at DL and A. Ushakov at DESY.
  - Lei has numerically integrated Kincaid's photon spectrum without making assumptions about the relationship between the energy and angle of the photons.
  - Now comparing with earlier results.
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# Proposed Programme for 2008

- Current work (looking at polarisation variation with realistic photon spectrum and collimator) to finish by EPAC '08.
  - May then go back to looking at engineering aspects of collimator.
  - Investigate application of undulator positron source at CLIC?
  - Is this an optimum use of resource?
    - 1 PhD student + ~0.2 FTE RA
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