



Aza Eleni ESR 1

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Personal information

- Born in Drama, Greece
- Year 1986
- Studies in Athens
- Living in Thessaloniki
- Working as a high school teacher for 3 years
- ARDENT ESRI, CERN, DGS-RP



NTUA, Athens

2003-2009 – Bachelor: Applied Mathematics and Physics

- Mathematics
- Physics → Nuclear physics
- Mechanics
- Computing → Laser technology
- Chemistry



2009-2011 – Master: Physics and technological applications

- Physics

2012 – PhD: Aristotle University of Thessaloniki (AUTH)

ARDENT project

Neutron detection → indirect detection through interaction with the absorbing material

Interaction type



Scattering

- elastic
- inelastic



Absorption

- electromagnetic
- charged
- neutral
- fission

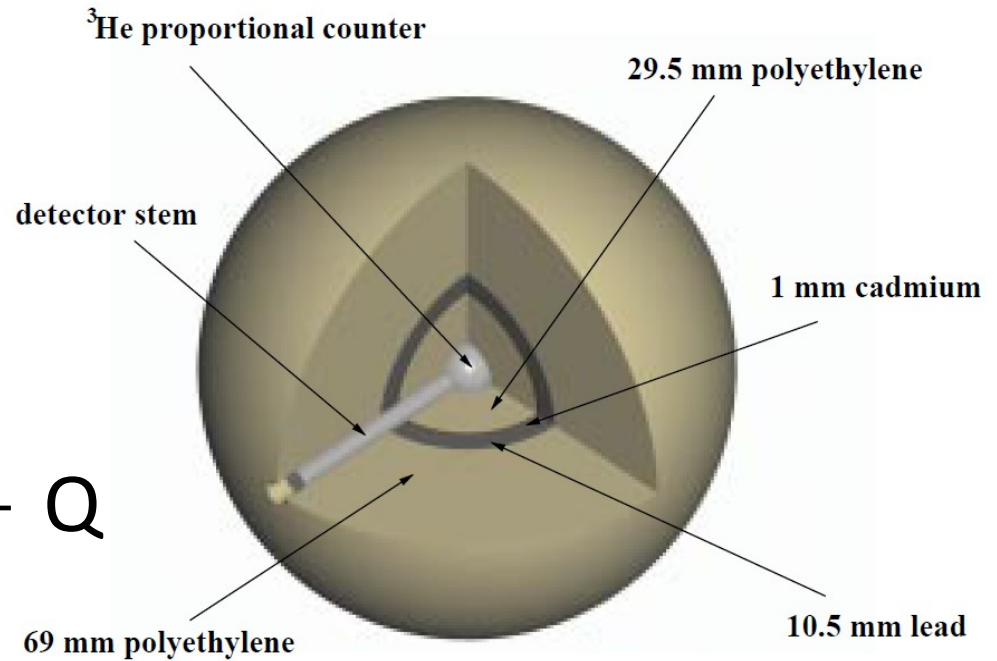
→ cross-section of interaction depends on the energy of the incoming neutron, moderation of fast neutrons to reach the thermal region $< 1\text{eV}$

Bonner Sphere Spectrometer

Polyethylene
+ Fe, Cd, Cu layers



detect at least one of the
produced particles

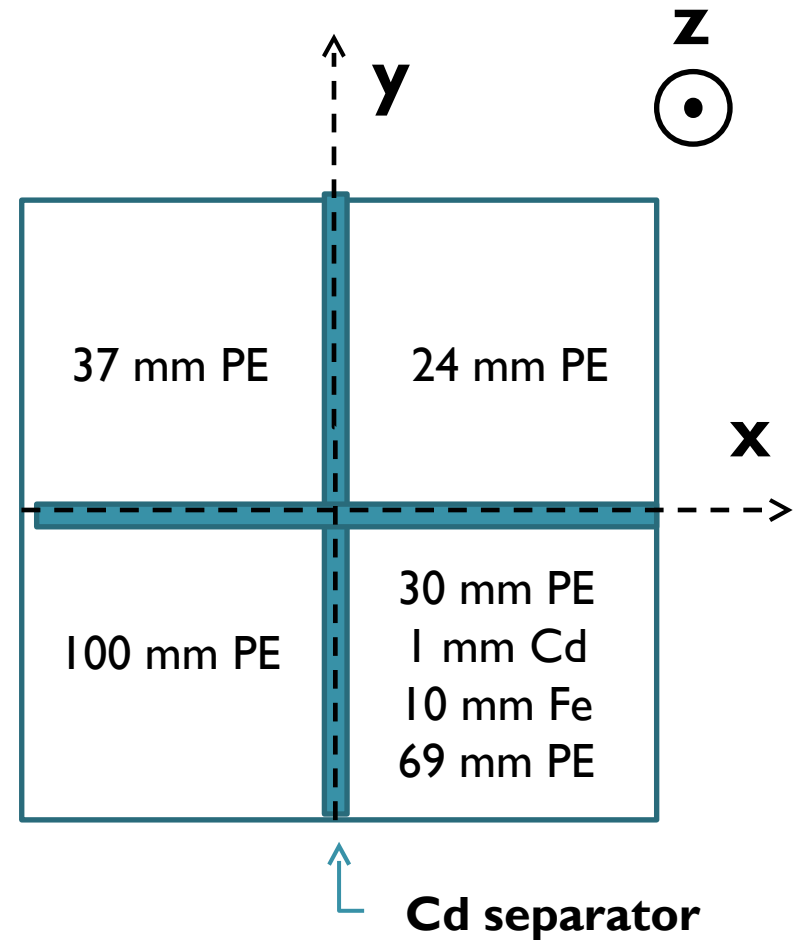
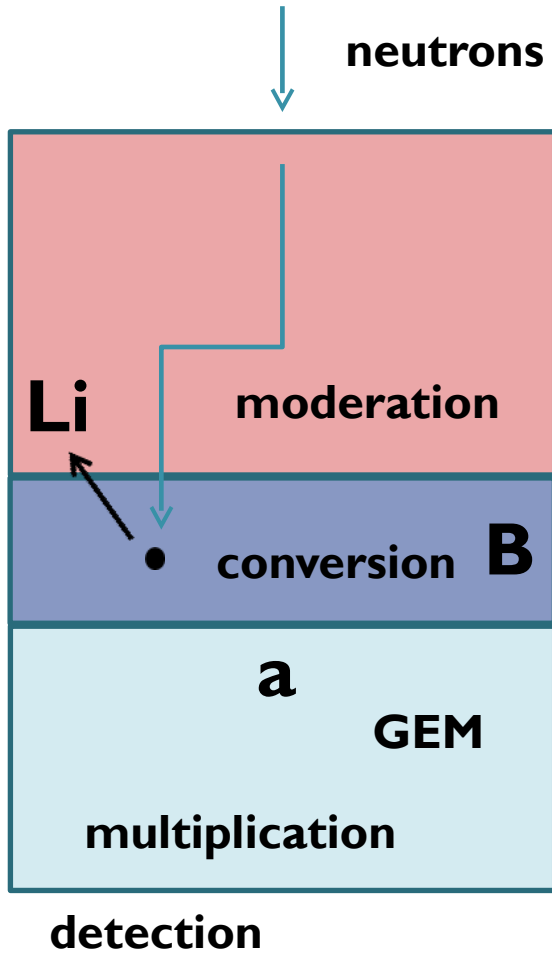


Ollio BSS

FLUKA simulation – 4 sector GEM

Gaseous ionization chamber

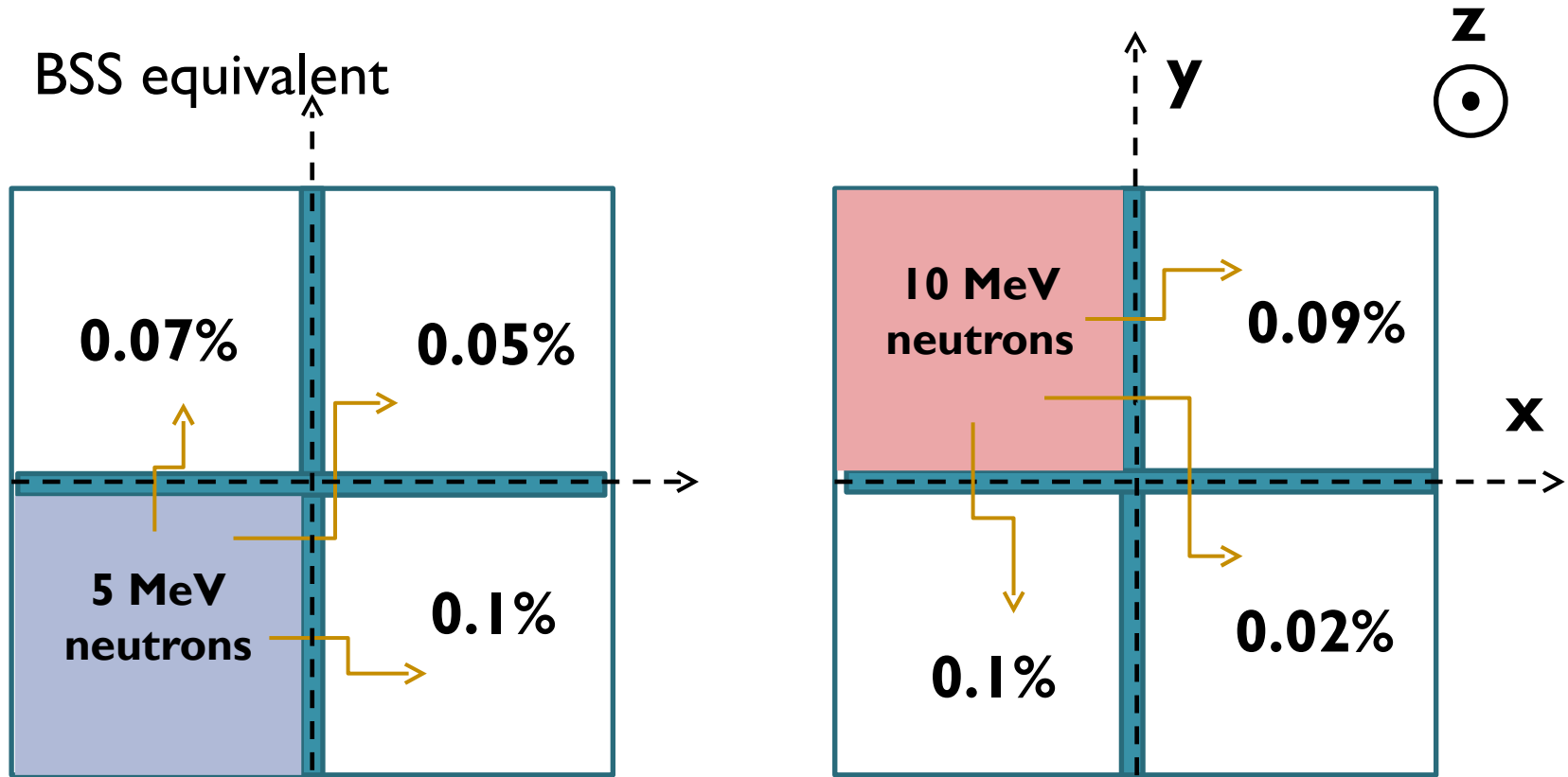
BSS equivalent



FLUKA simulation – 4 sector GEM

Gaseous ionization chamber

BSS equivalent



→ each sector sensitive to different energy range
can be used for neutron dosimetry



FLUKA simulation – 4 sector GEM

- Fluency of neutrons exiting the moderator
- Crosstalk effects from neighboring sectors
- Optimization of the thickness of absorbing material
- Response function of the whole detector

Thank you!