Japan-Korea Joint Summer School on Radiation Science and Engineering
Kitakyusyu International Conference Center (15 Jul 2009)

Demonstration of EGS5

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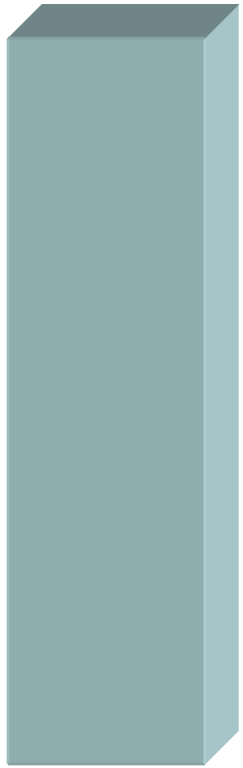
Subject 1: Attenuation of β ray

Source
^{90}Sr-^{90}Y

β ray
Max energy
2.3 MeV

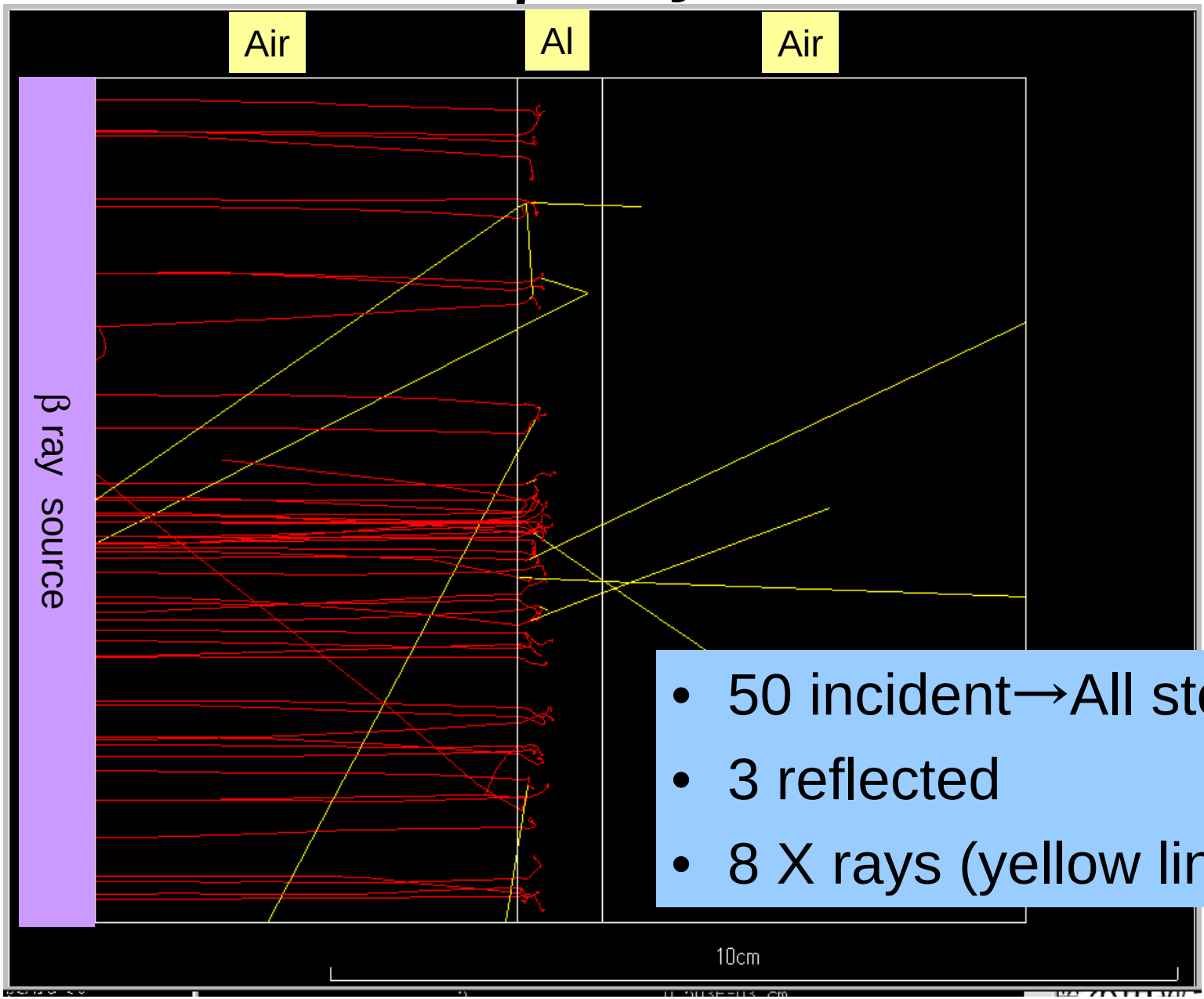


Aluminum Plate

- Are β rays stopped in material? or goes through?
- What happens in the Aluminum plate?

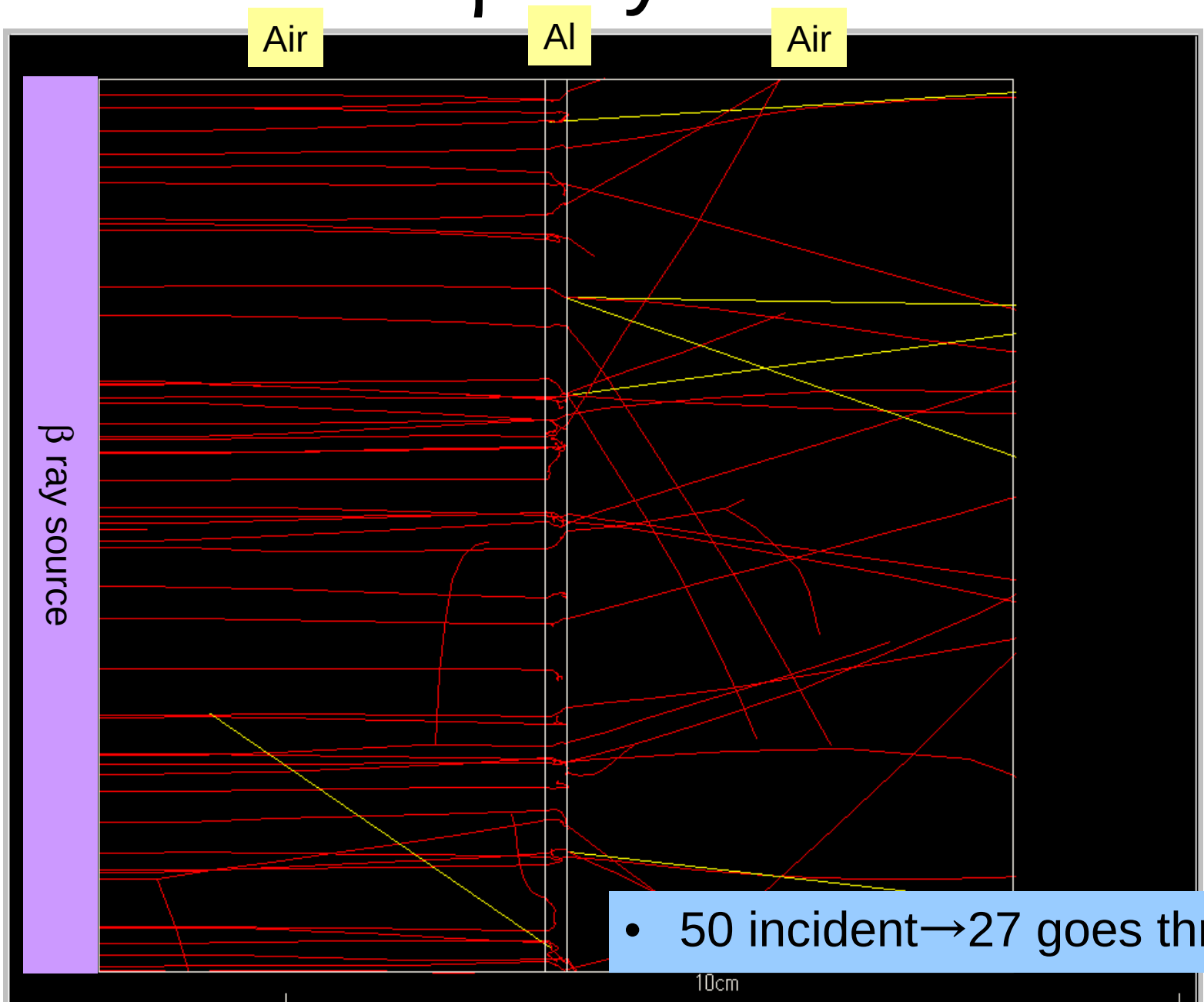
→ Run EGS5 and observe computer graphics

2.3 MeV β ray→Al 1cm



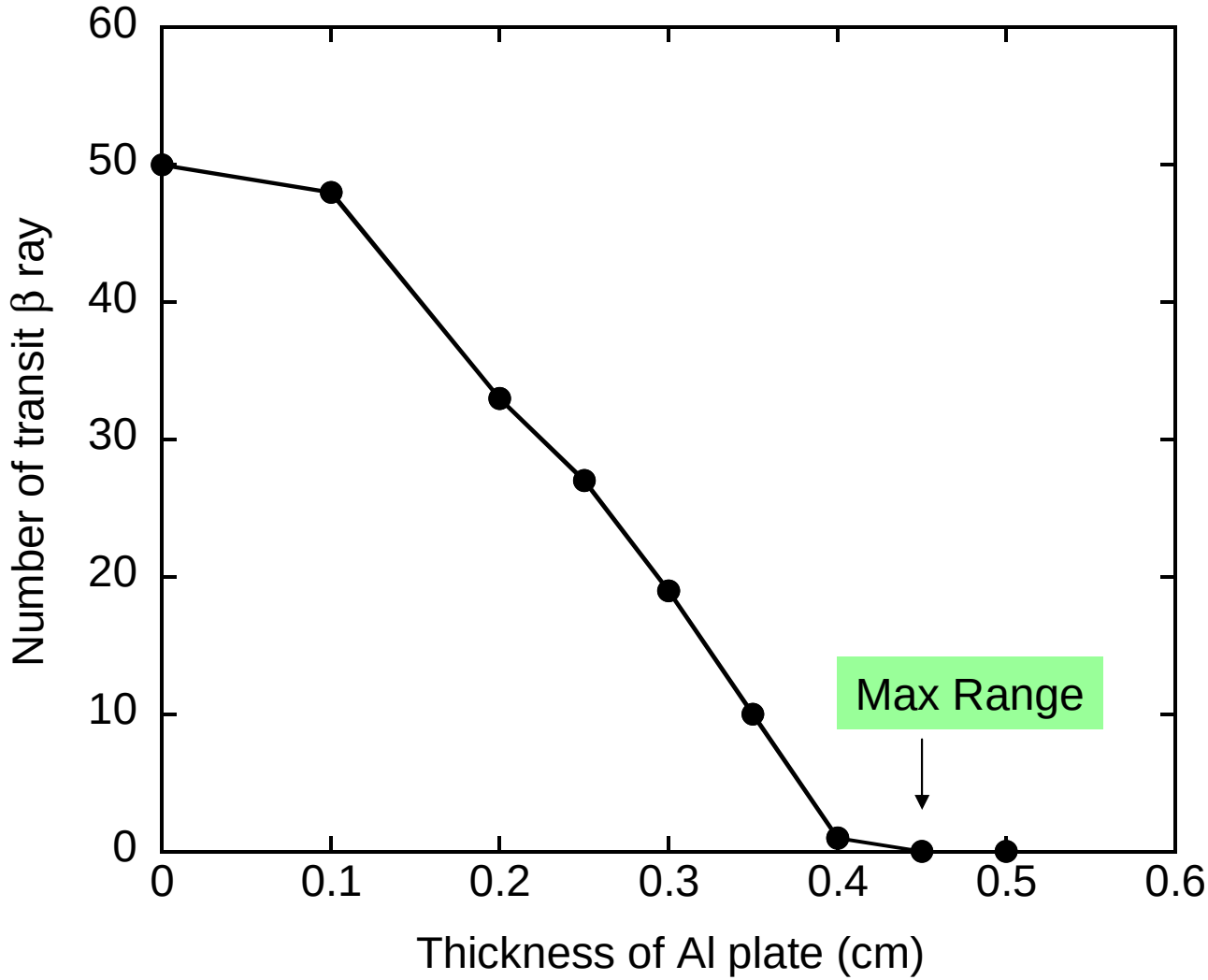
- 50 incident→All stopped
- 3 reflected
- 8 X rays (yellow line)

2.3 MeV β ray→Al 0.25cm



- 50 incident→27 goes through

Number of transit β ray



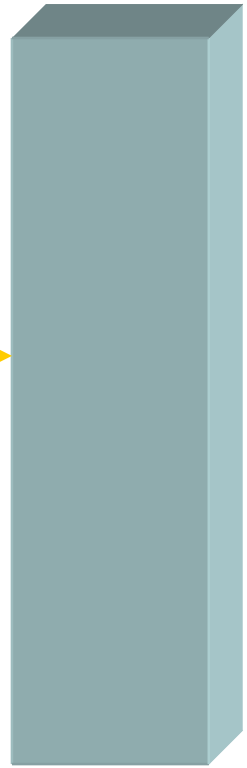
Procedure for PC

- Extract ucshield.* and shield.dat from isord5.tar.gz
- Open command prompt window
- Run egs5 by type in followings;
  - C:¥g77¥g77setup
  - cd egs5/userdir
  - egs5run ucshield
- Respond to prompt
  - Key in Material number: 1
  - Do you want to produce… : 0
  - Key in particle type: -1
  - Key in particle kinetic energy in MeV : 2.3
  - Key in slab thickness in cm : 1.0
- Run Cgview
  - File -> Read geometry -> (Move to working folder) -> Select egs5job.pic

Subject 2 Attenuation of γ ray

Source
^{60}Co

γ ray
Average energy
1.25 MeV

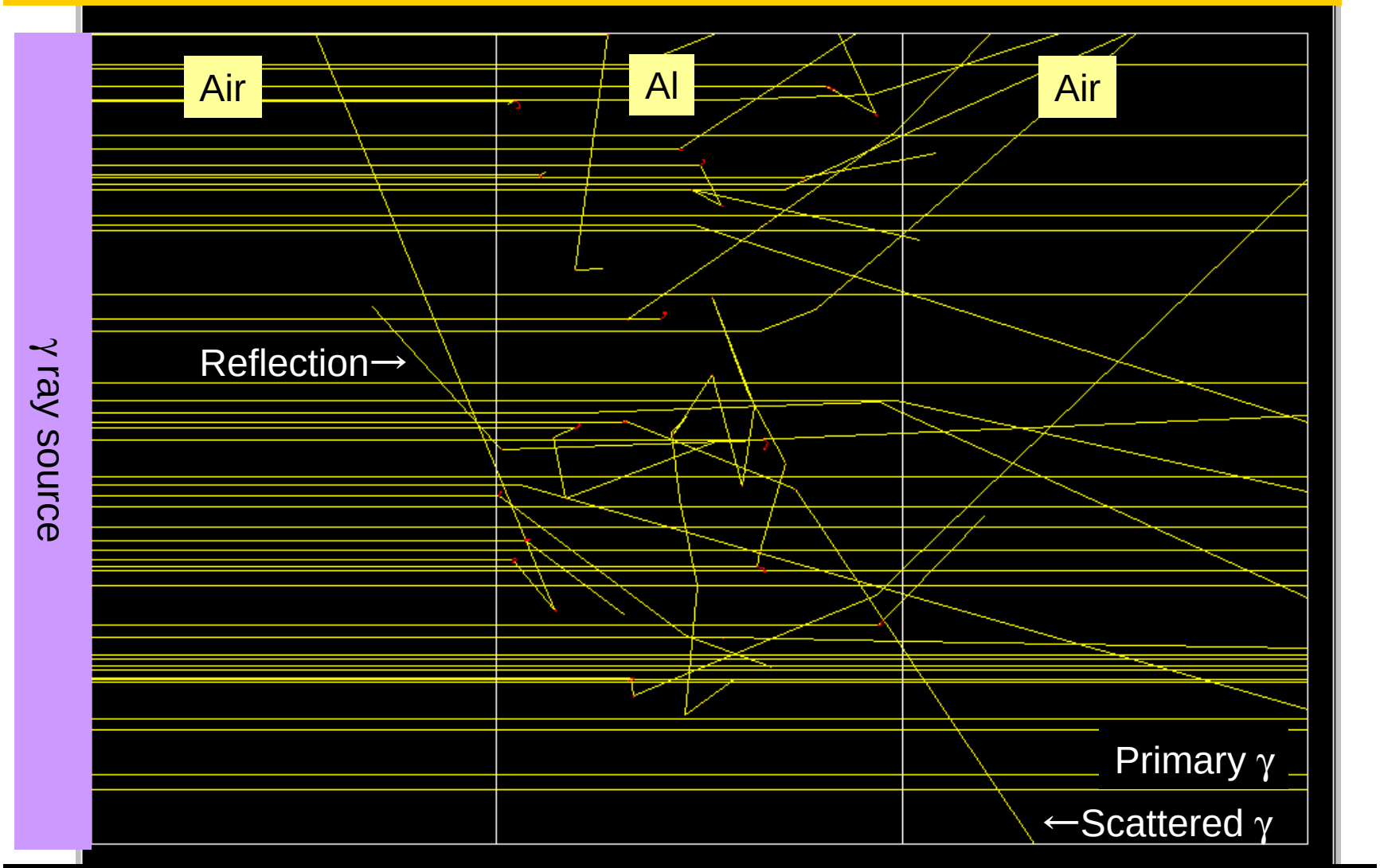


Aluminum Plate

- Are γ rays stopped in material or goes through?
- What happens in the material?

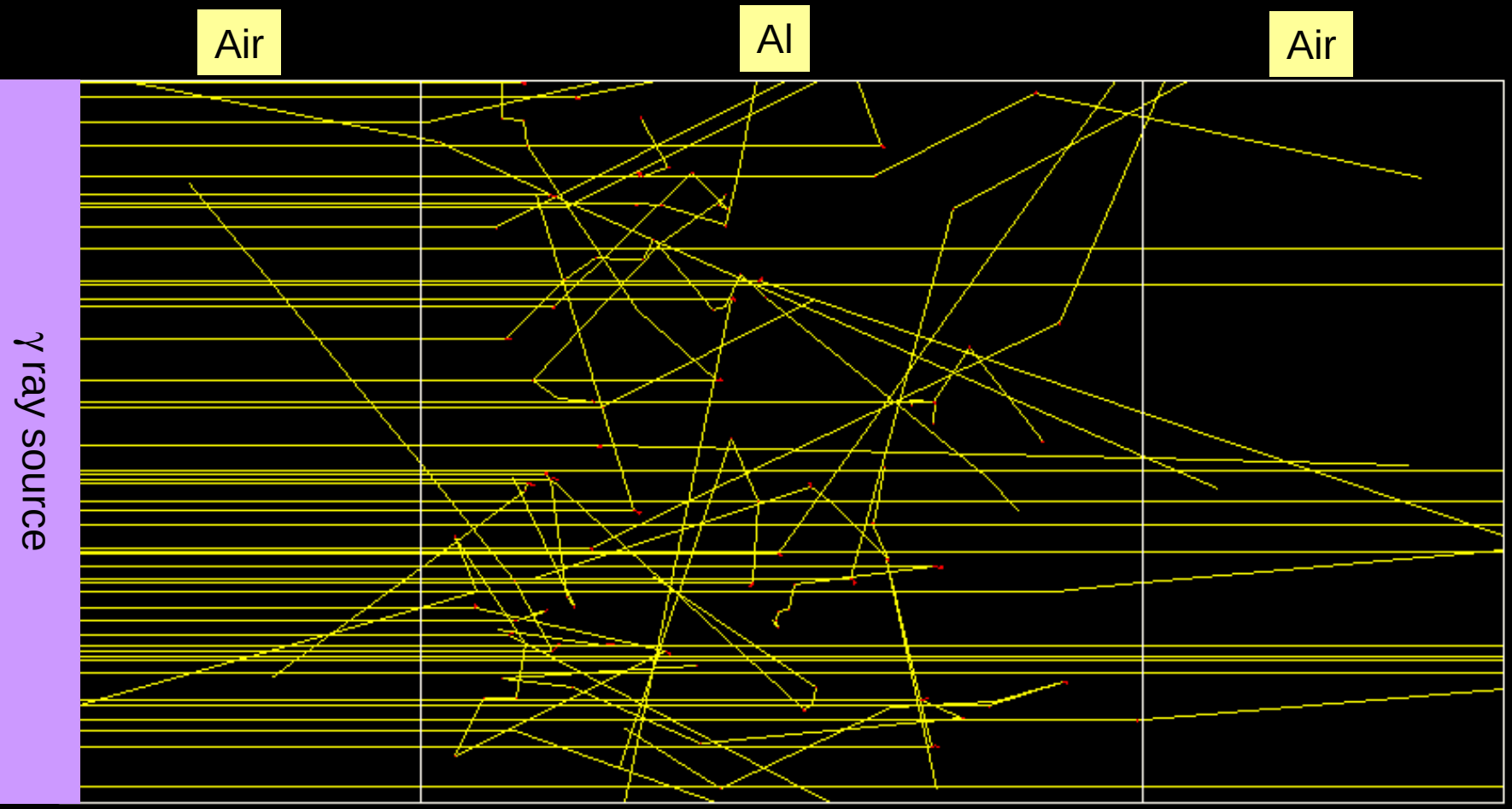
→ Run EGS5 and observe computer graphics

1.25 MeV γ ray→Al 5cm



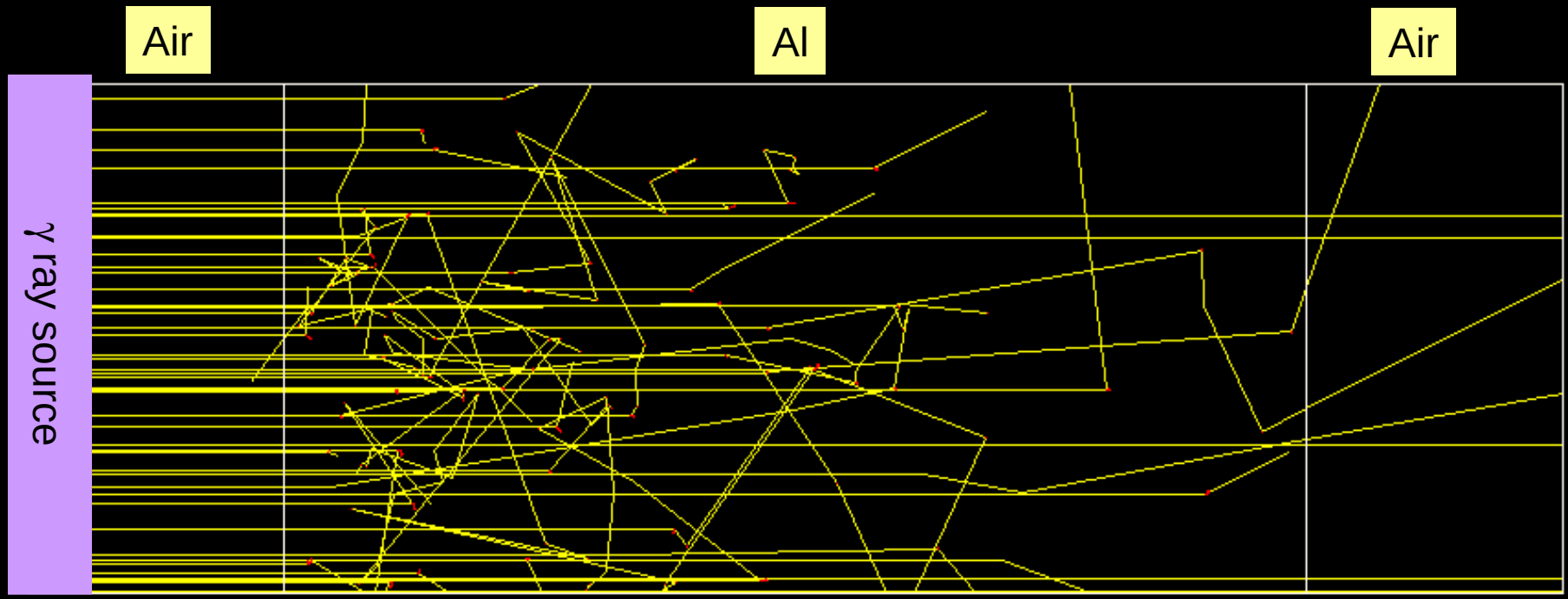
- Number of incident : 50
- Transit : Primary 24, Scattered 13; Reflection 2

1.25 MeV γ ray→Al 10cm



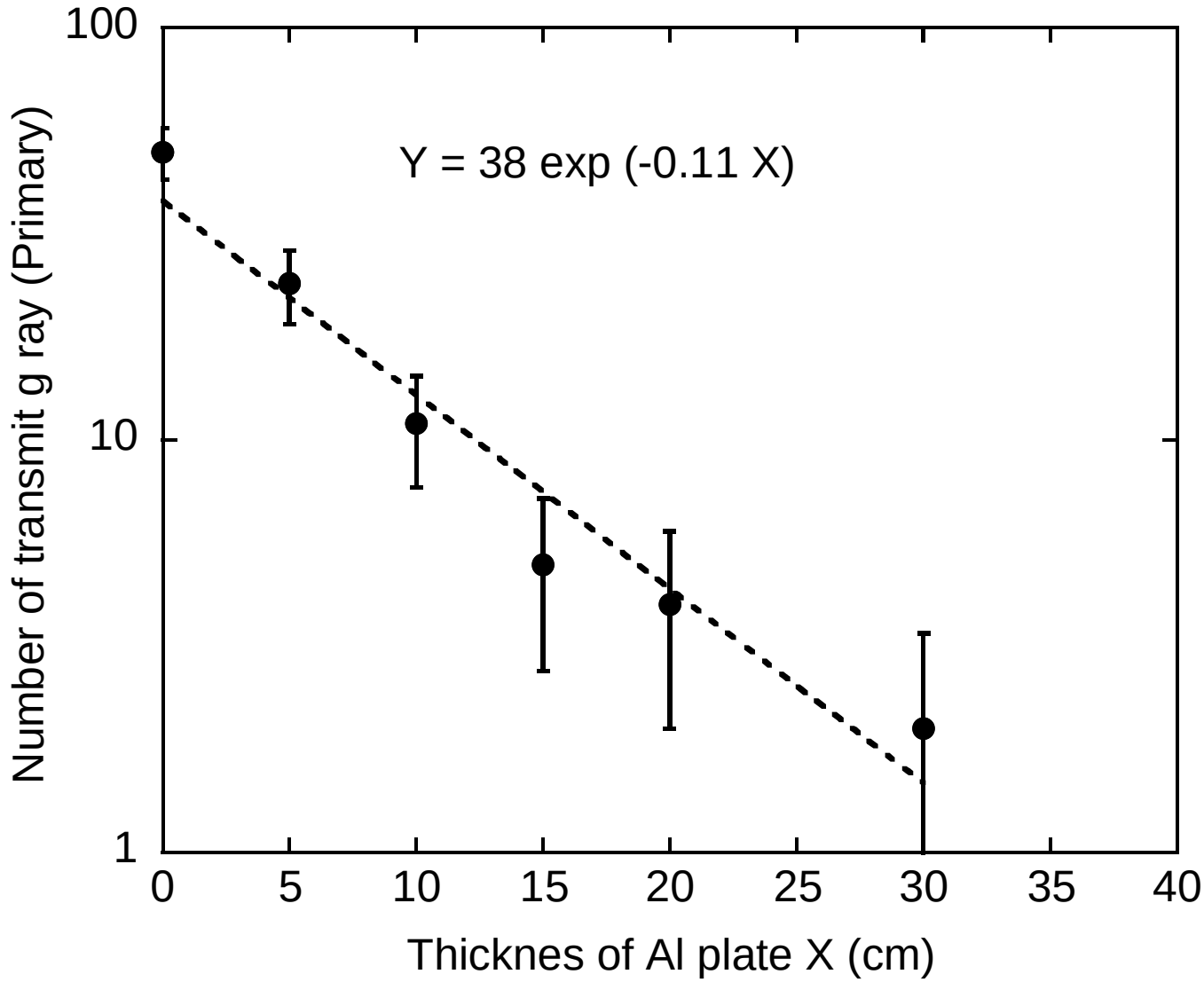
Transit : Primary 11, Scattered 8; Reflection 4

1.25 MeV γ ray→Al 20cm



Transit : Primary 4, Scattered 3; Reflection 1

Number of transit γ ray



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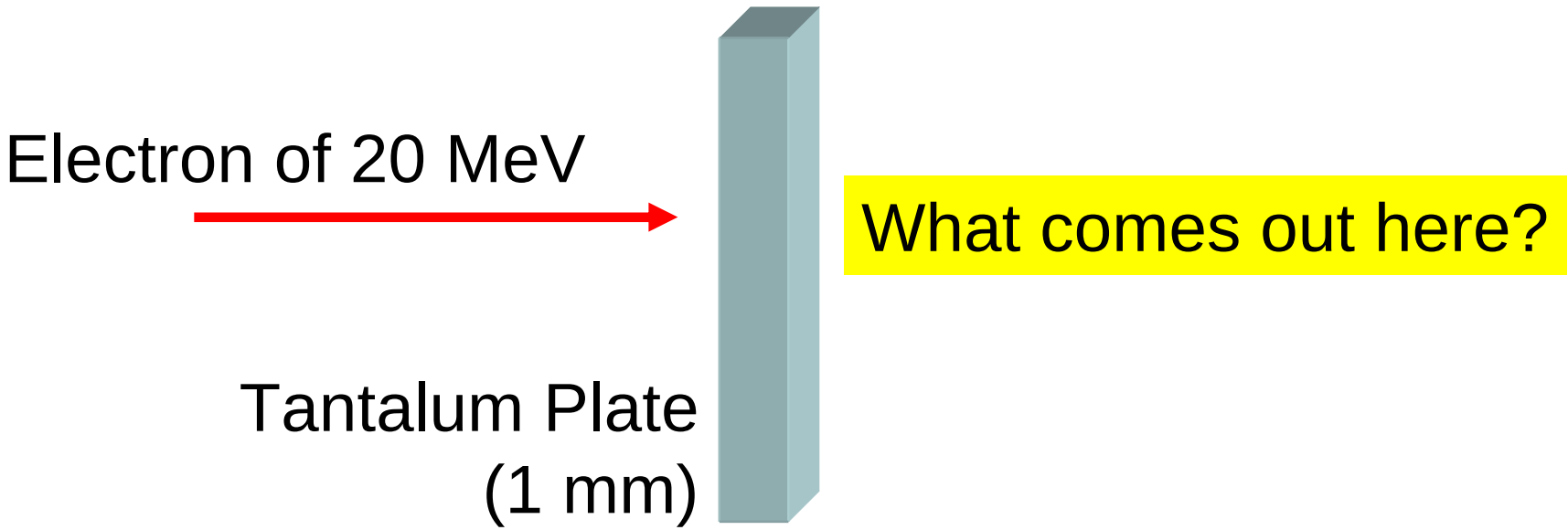
  - C:¥g77¥g77setup
  - cd egs5/userdir
  - egs5run ucshield
- Respond to prompt
  - Key in Material number: 1
  - Do you want to produce… : 0
  - Key in particle type: 0
  - Key in particle kinetic energy in MeV : 1.0
  - Key in slab thickness in cm : 1.0
- Run Cgview
  - File -> Read geometry -> (Move to working folder) -> Select egs5job.pic

Subject 3 tutor codes

- Run tutor1 code (also other tutor code)
- Compare output with manual
  - Relation of output and corresponding code
- Investigate specification of source particle

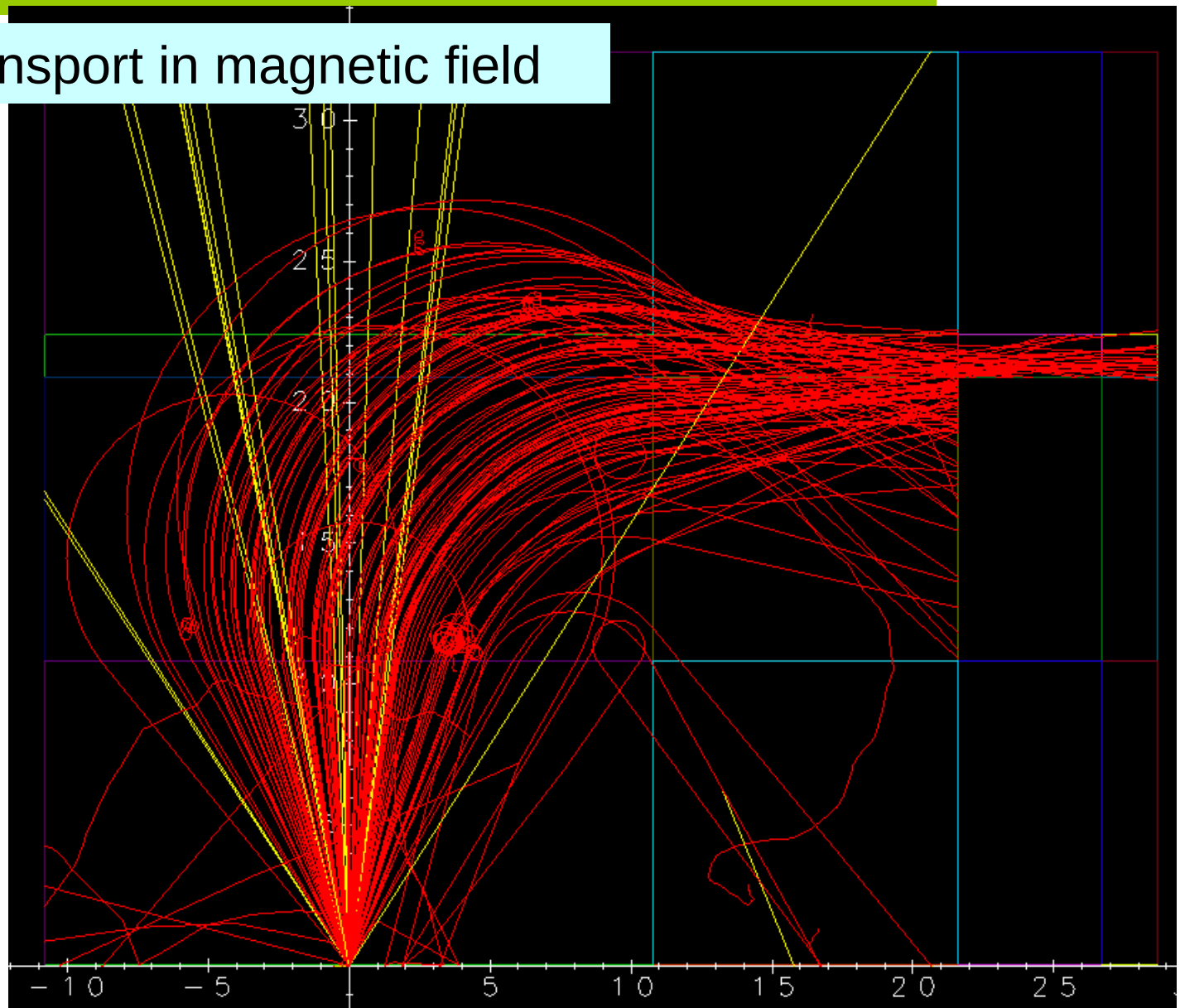


Procedure for PC

- Copy tutor# from egs5 folder to working folder
  - # = 1,2,3,5,6,7
- Open command prompt window
- Run egs5 by type in followings;
  - C:¥g77¥g77setup
  - cd egs5/userdir
  - egs5run tutor#
- Compare output with tutor#.out
- Read tutor#.f
  - Lines for output particle information
  - Lines for source particle

Subject 4 ucbend.f

Electron transport in magnetic field



Procedure for PC

- Extract ucbend.* from isord5.tar.gz .
- Run egs5 by type in followings;
  - C:¥g77¥g77setup
  - cd egs5/userdir
  - egs5run ucbend
- Run Cgview
  - File -> Read geometry -> (Move to working folder) -> Select egs5job.pic