The European Commission's science and knowledge service

Joint Research Centre

Survey and test/quiz results

Mikael Hult

European Commission – Joint Research Centre – Directorate for Nuclear Safety and security, JRC-Geel

Course on gamma-ray spectrometry
CEA, Paris, June 12, 2018

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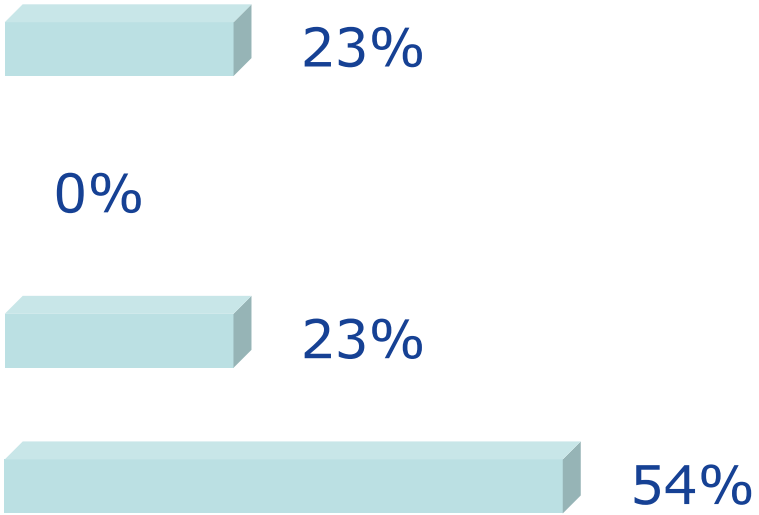
Question 1: How many years have you worked with gamma-ray spectrometry?

1 – 0.. I am a beginner

2 – 0-1 year

3 – 1-3 years

4 – 3 years or more



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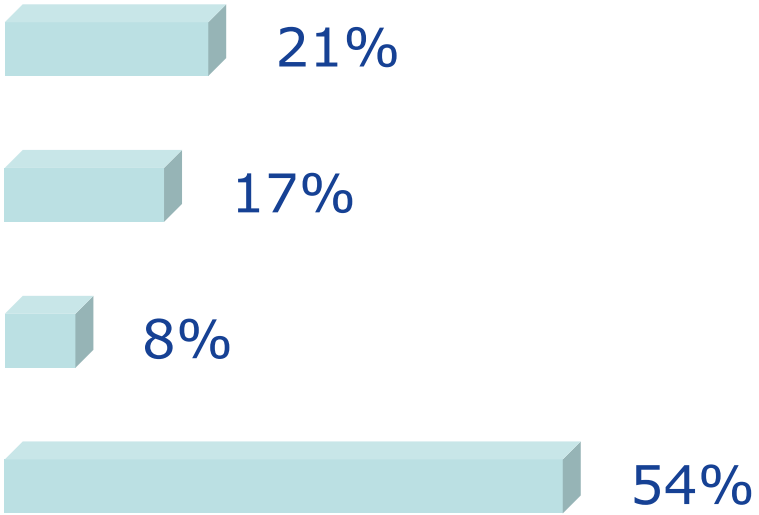
Question 2: What is the energy of the major gamma-ray from the decay of Bi-214

1 – 604 keV

2 – 662 keV

3 – 669 keV

4 – 609 keV



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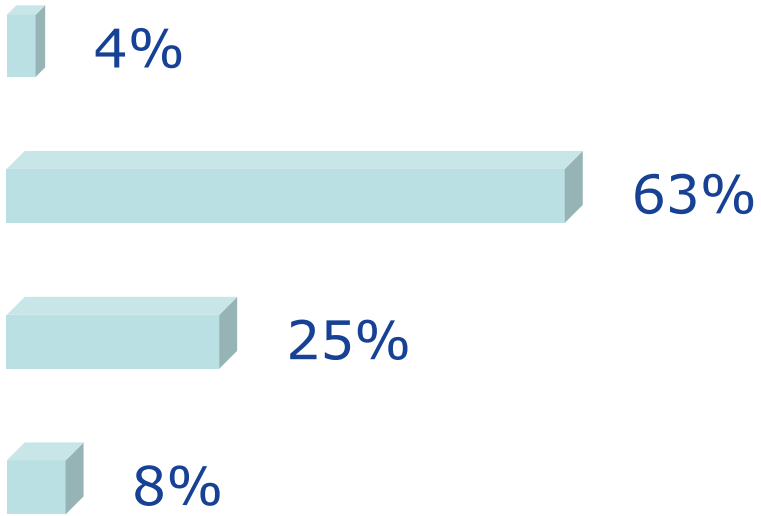
Question 3: Which radionuclide is not a gamma-ray emitter

1) Ag-108m
2) Ca-41
3) Hg-203
4) Cr-51



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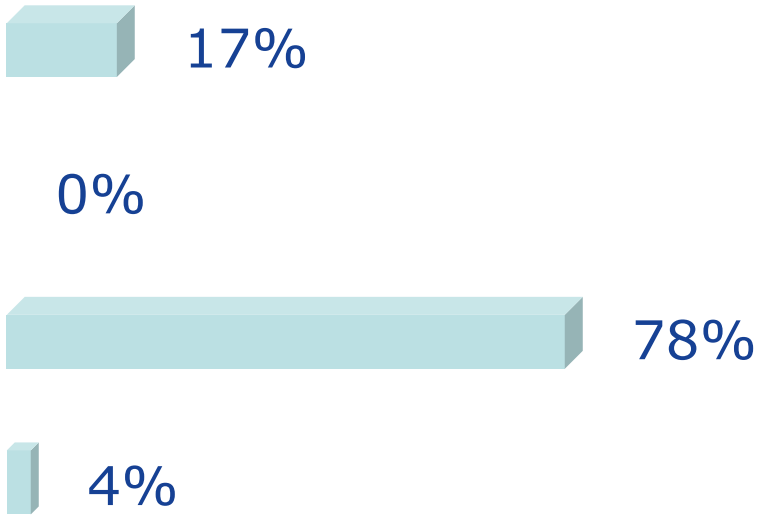
Question 4: What is the half-life of I-131?

1 – 30 years

2 – 16.1 million years

3 – 8.02 days

4 – 9.01 hours



Question 5: Which decay data library is recommended by ICRM (International Committee for Radionuclide Metrology)?

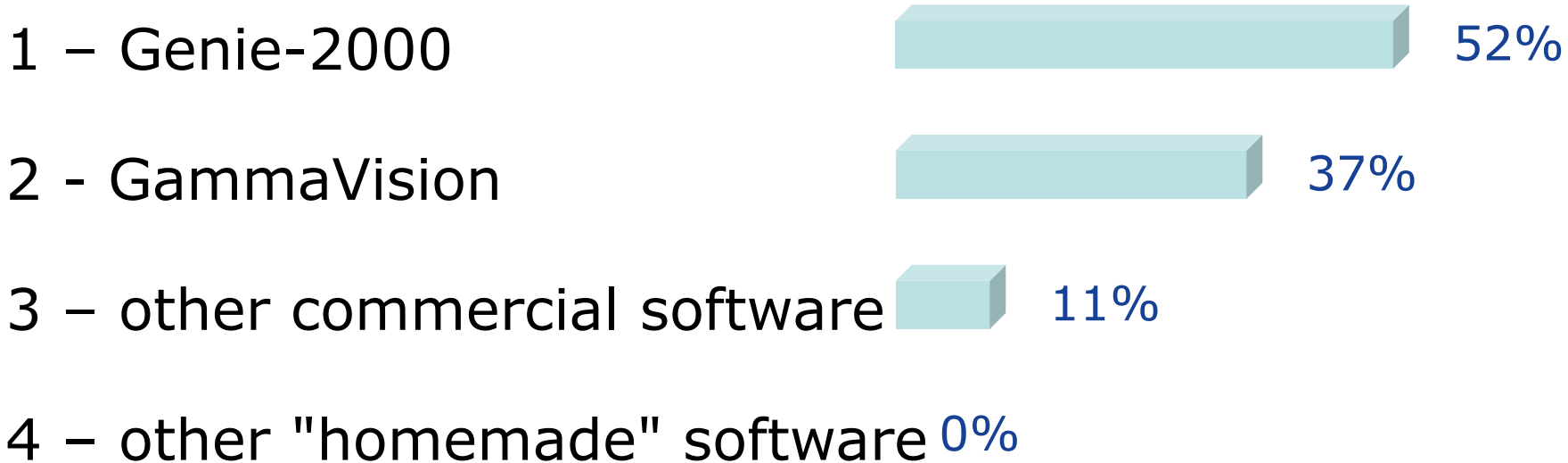
1 – DDEP (Decay Data Evaluation Project) at nucleide.org 95%

2 – JEFF-3.2 Joint Evaluated Fission and Fusion File) 0%

3 – ENSDF (Evaluated Nuclear Structure Data File) 5%

4 – Table of isotopes 0%

Question 6: Which software is your main software for data acquisition?



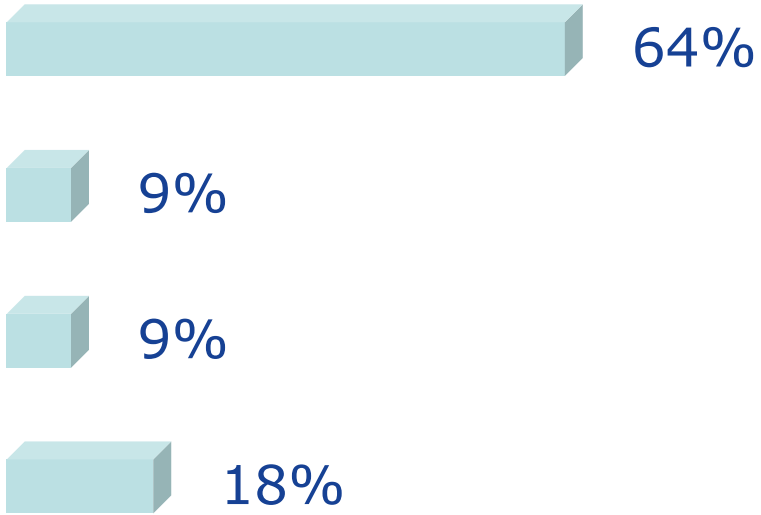
Question 7: How would you categorise yourself?

1 – Physicist

2 - Radiochemist

3 – Chemist

4 – other..



Question 15: What is the situation in your lab for gamma-ray spectrometry?

1 – All our electronics is digital

14%

2 – All our electronics is analogue and we have no plan to change

5%

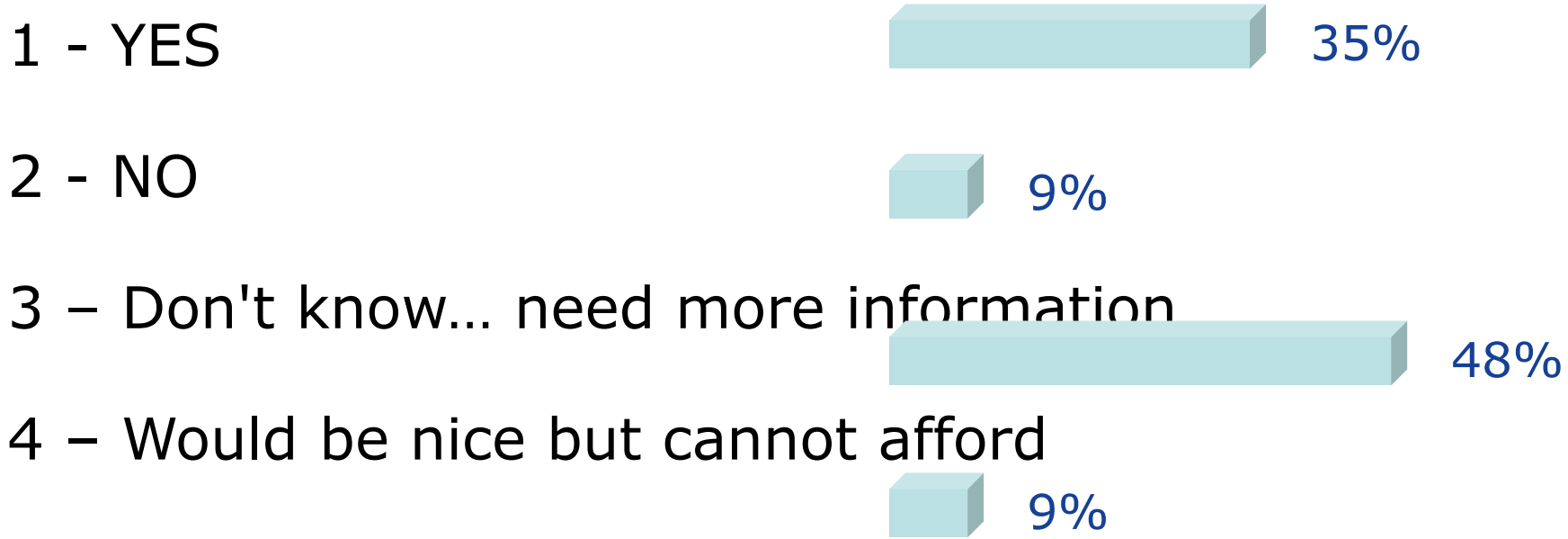
3 – All our electronics is analogue but we plan to change

5%

4 - We use both analogue and digital electronics

77%

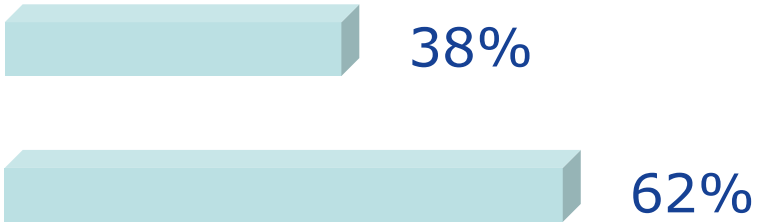
Question: Do you think it is worthwhile to buy a Compton suppression system for your laboratory?



Question 8: Can a Compton suppression system act as muon veto?

1 - Yes

2 - No



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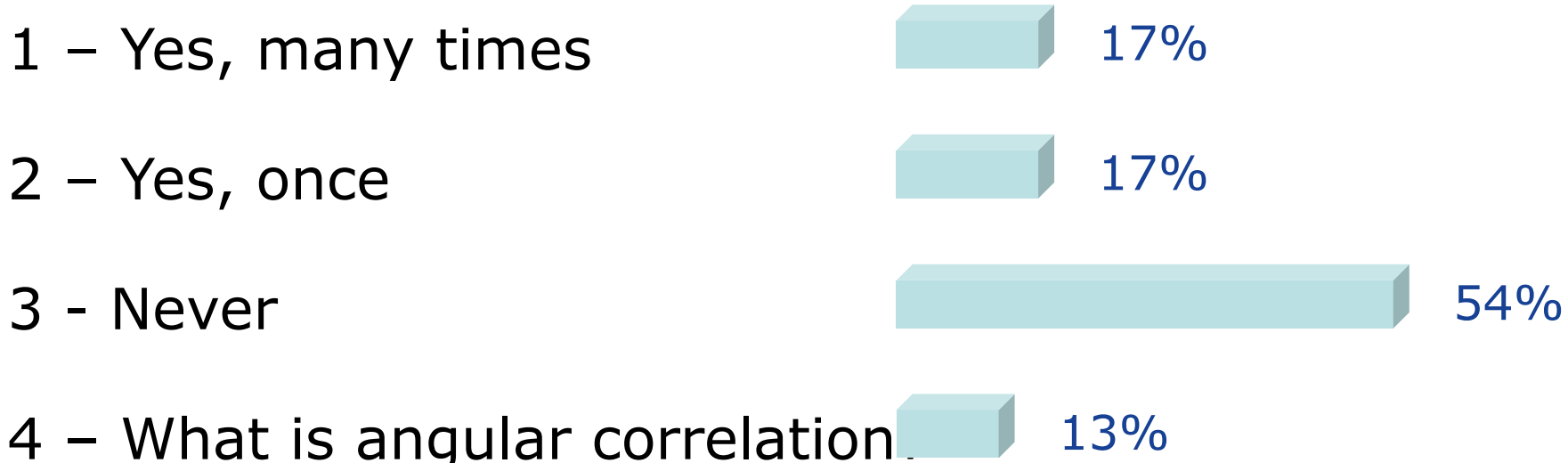
Question 9: Can a (normal) muon veto act as Compton suppression

1 - Yes

2 - No

DAY-2

Question 1: Have you ever performed a correction for angular correlation



Question 2: Have you ever performed an equilibrium correction

Question 1:
Half-life of parent: 10 Years
Half-life of daughter 5 years
Transient equilibrium
What is the equilibrium factor?

$$= \frac{T_{½}(A)}{T_{½}(A) - T_{½}(B)}$$

1 – 1.2

2 – 0.2

3 – 2.0

4 – 0.8

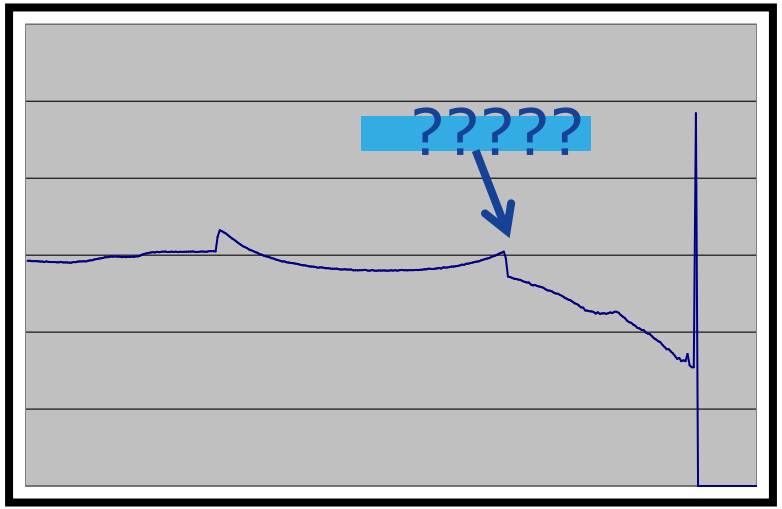
Question 1: What is this spectrum feature?

1 – Single escape

2 – Compton edge

3 – Backscatter peak

4 – X-ray escape



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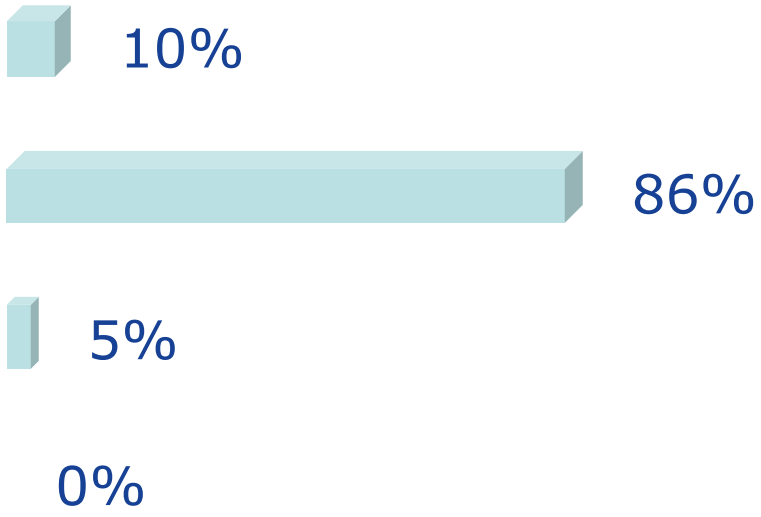

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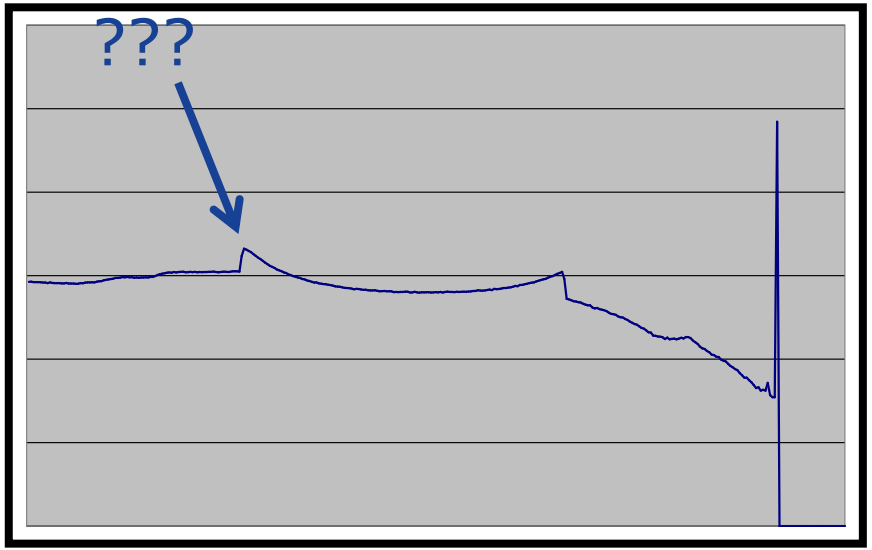
Question 2: What is this spectrum feature?

1 – Backscatter peak

2 – Single escape

3 – X-ray escape

4 – Ge X-ray



Question 2: What is this spectrum feature?

1 – Backscatter peak 78%

2 – Single escape 4%

3 – X-ray escape 9%

4 – Ge X-ray 9%

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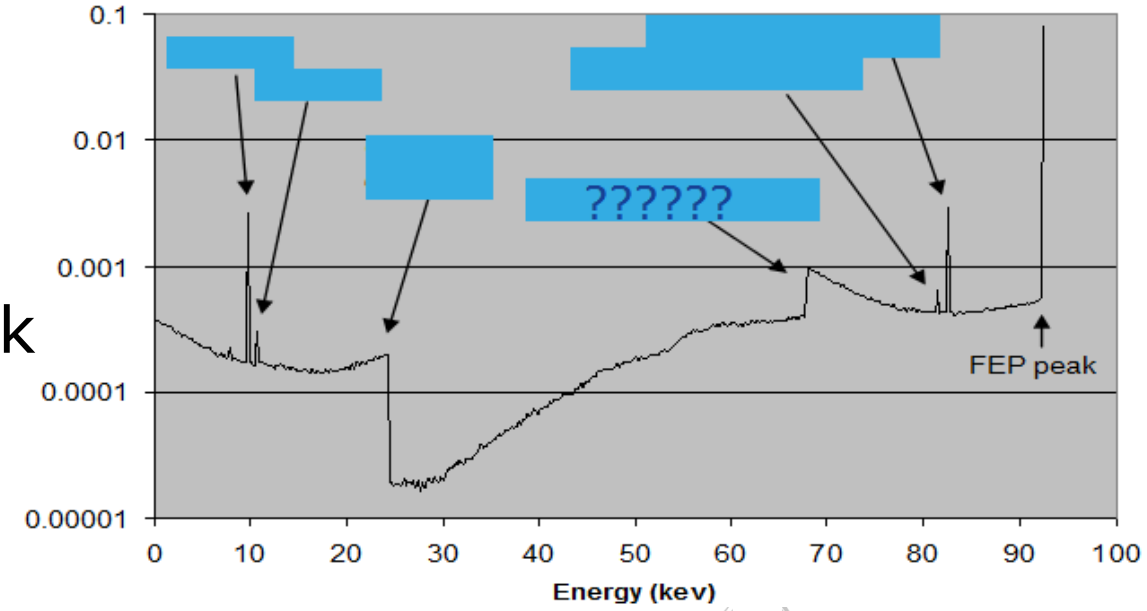

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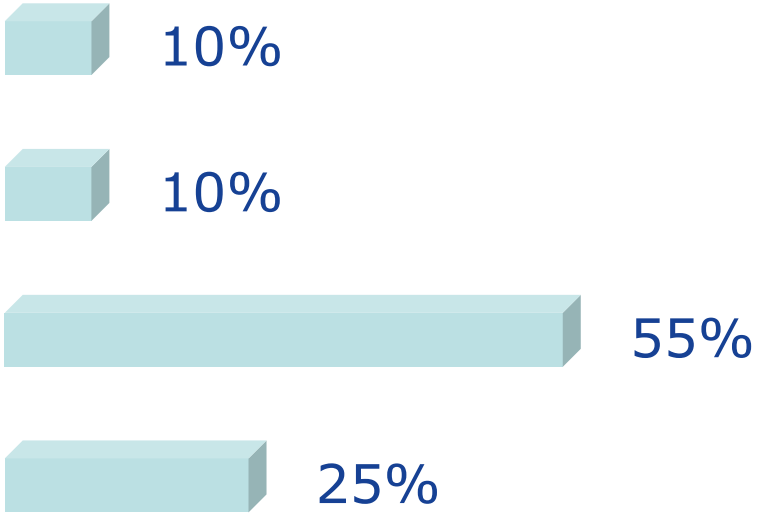

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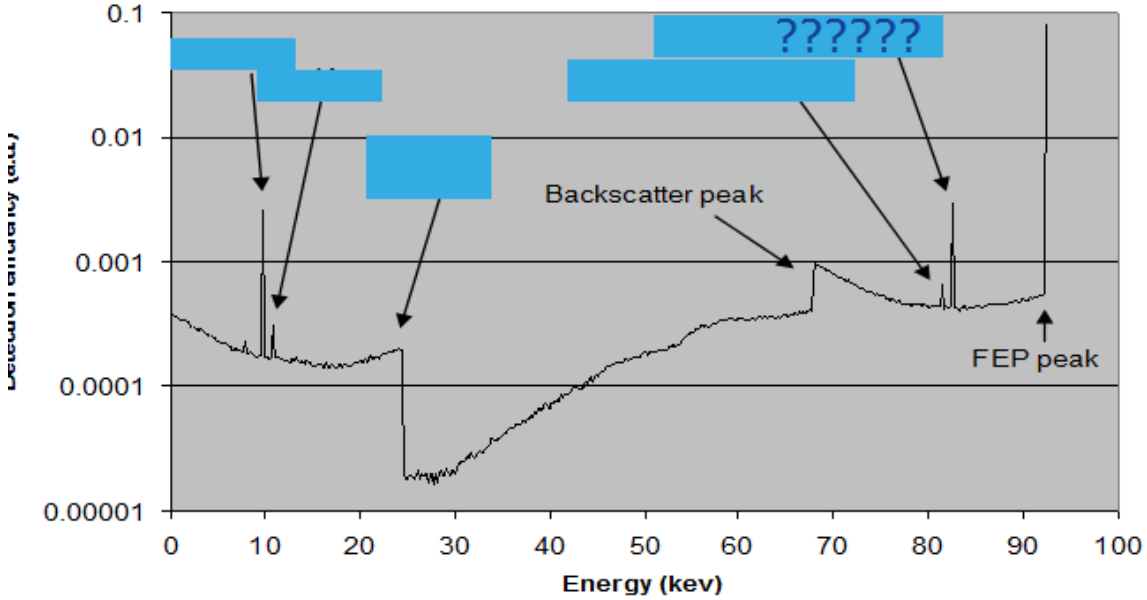

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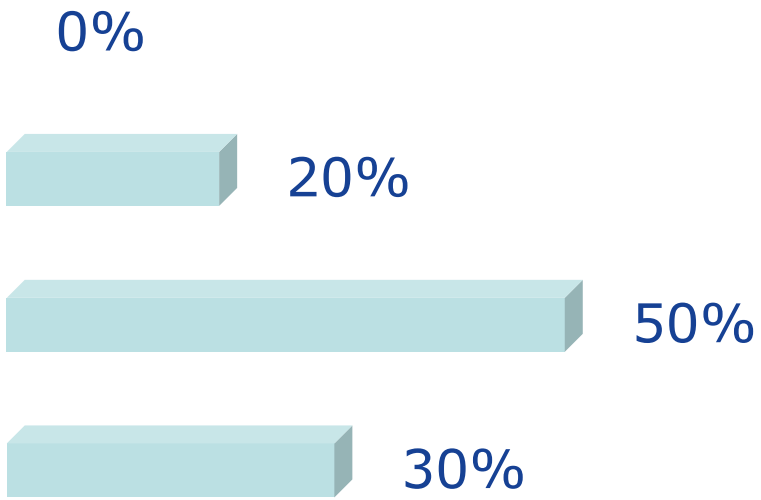


Question 3: What is this spectrum feature?

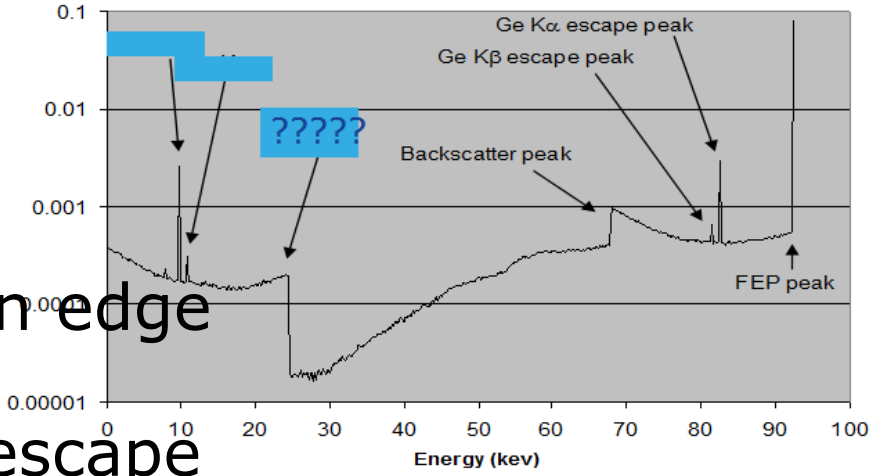
21

1 – Compton edge

2 – Single escape of Compton edge

3 – Compton edge of single escape

4 – Annihilation in flight near to nucleus



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Question 3: What is this spectrum feature?

1 – Compton edge 62%

2 – Single escape of Compton edge 14%

3 – Compton edge of single escape 24%

4 – Annihilation in flight near to nucleus 0%