A radioactivity study with The Quinsland University's Remote Laboratory

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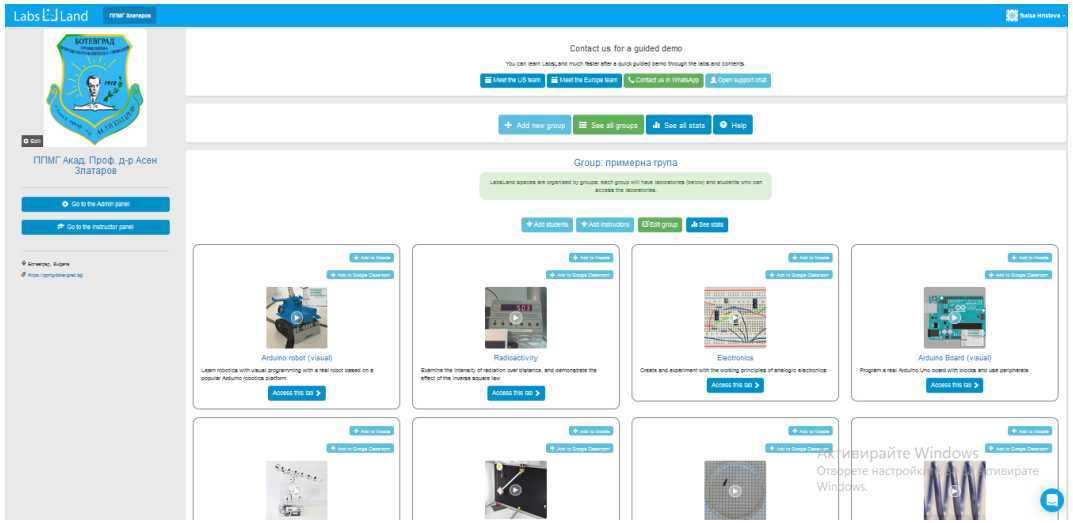
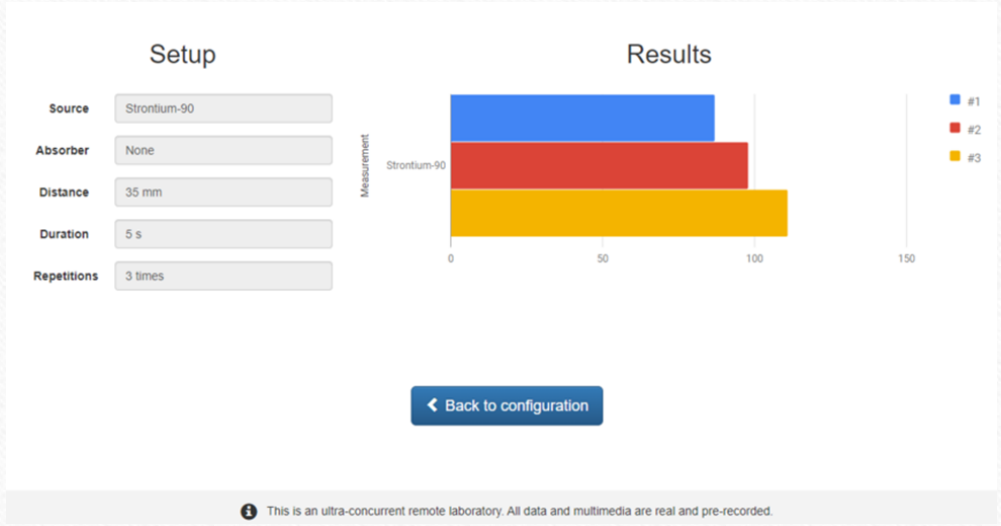


Our Labs Land

Task 1: Measurement of radioactive radiation without absorber

a) Strontium 90, without absorber, distance 35 mm

Setup and Results



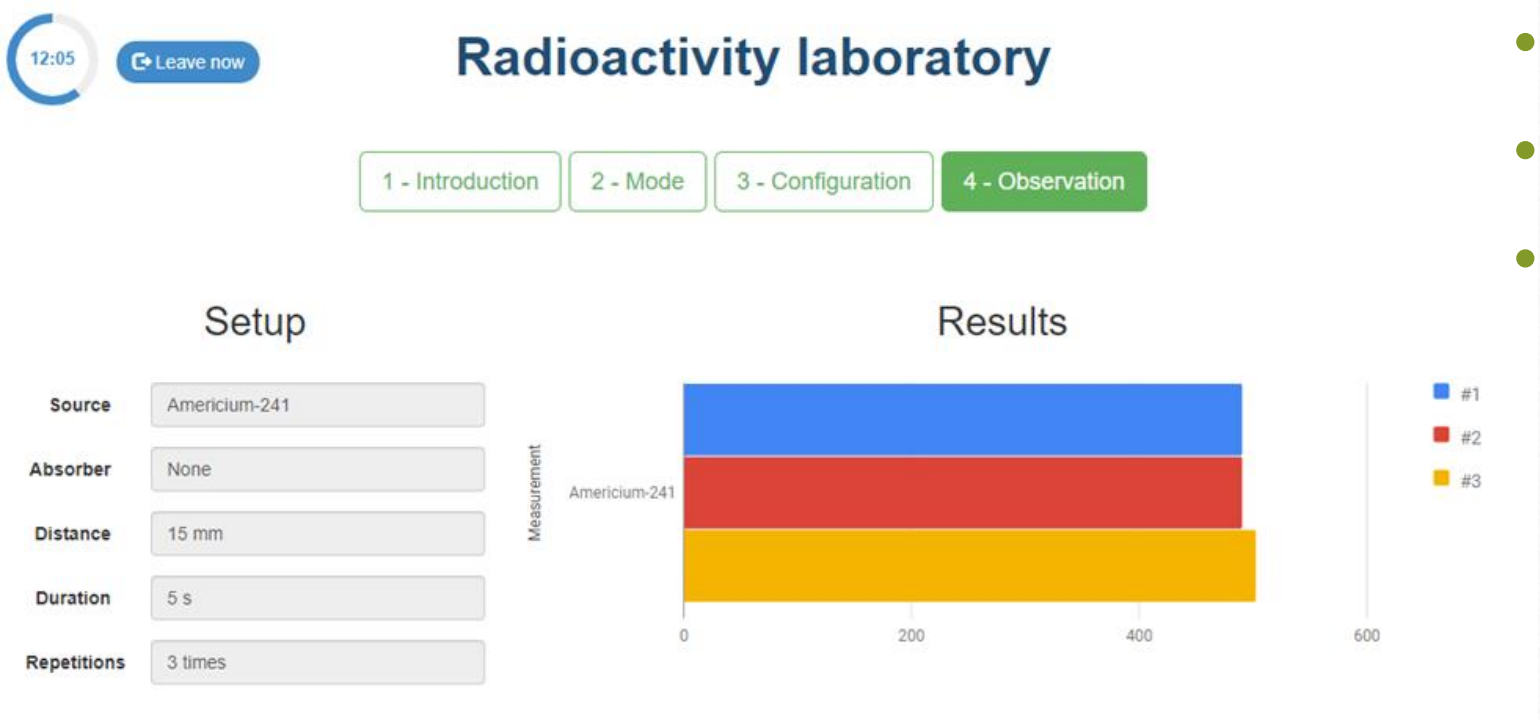
Measurement

- First measurement - 87 - number of radioactive particles
- Second measurement - 98 - number of radioactive particles
- Third measurement - 111 - number of radioactive particles

Task 1: Measurement of radioactive radiation without absorber

b) Americas - 241, no absorber, distance 15 mm

Setup and Results



Measurement

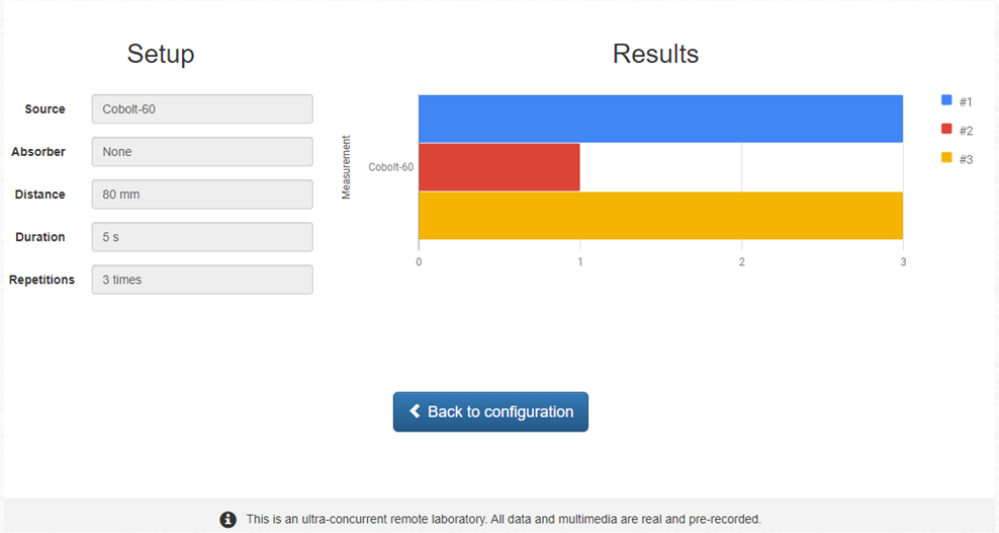
- First measurement - 494
- Second measurement - 498
- Third measurement - 499

Task 1: Measurement of radioactive radiation without absorber

c) Cobalt - 60, no absorber, distance 80 mm

Setup and Results

Measurement



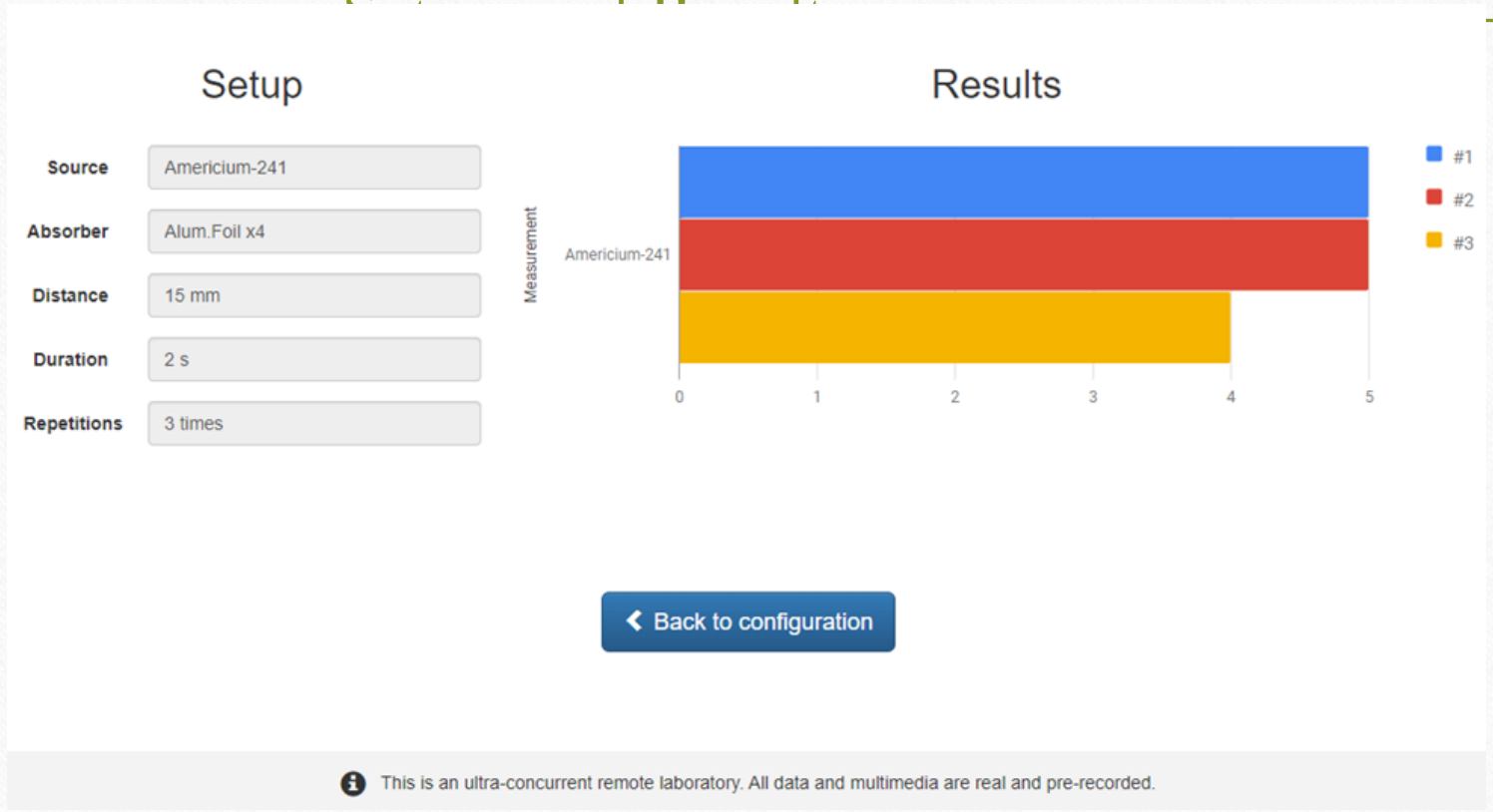
- First measurement - 3
- Second measurement - 1
- Third measurement - 3

CONCLUSION:

- The radioactivity of Americium - 241 is much higher without an absorber than Strontium 90 or Cobalt - 60.
- The study shows three measurements in which the Geiger - Mueller counter values are the highest than Americium - 241.
- These measurements show radioactive radiation at a distance of 35 mm at Strontium, 15 mm at Americas, 80 mm at Cobalt.
- The shorter the distance, the greater the radiation.

Task 2: Measurement of radioactive radiation with absorber

a)Americas - 241, Aluminum foil x4, distance 15 mm



Measurement

- First measurement – 4
- Second measurement - 2
- Third measurement – 4

Task 2: Measurement of radioactive radiation with absorber

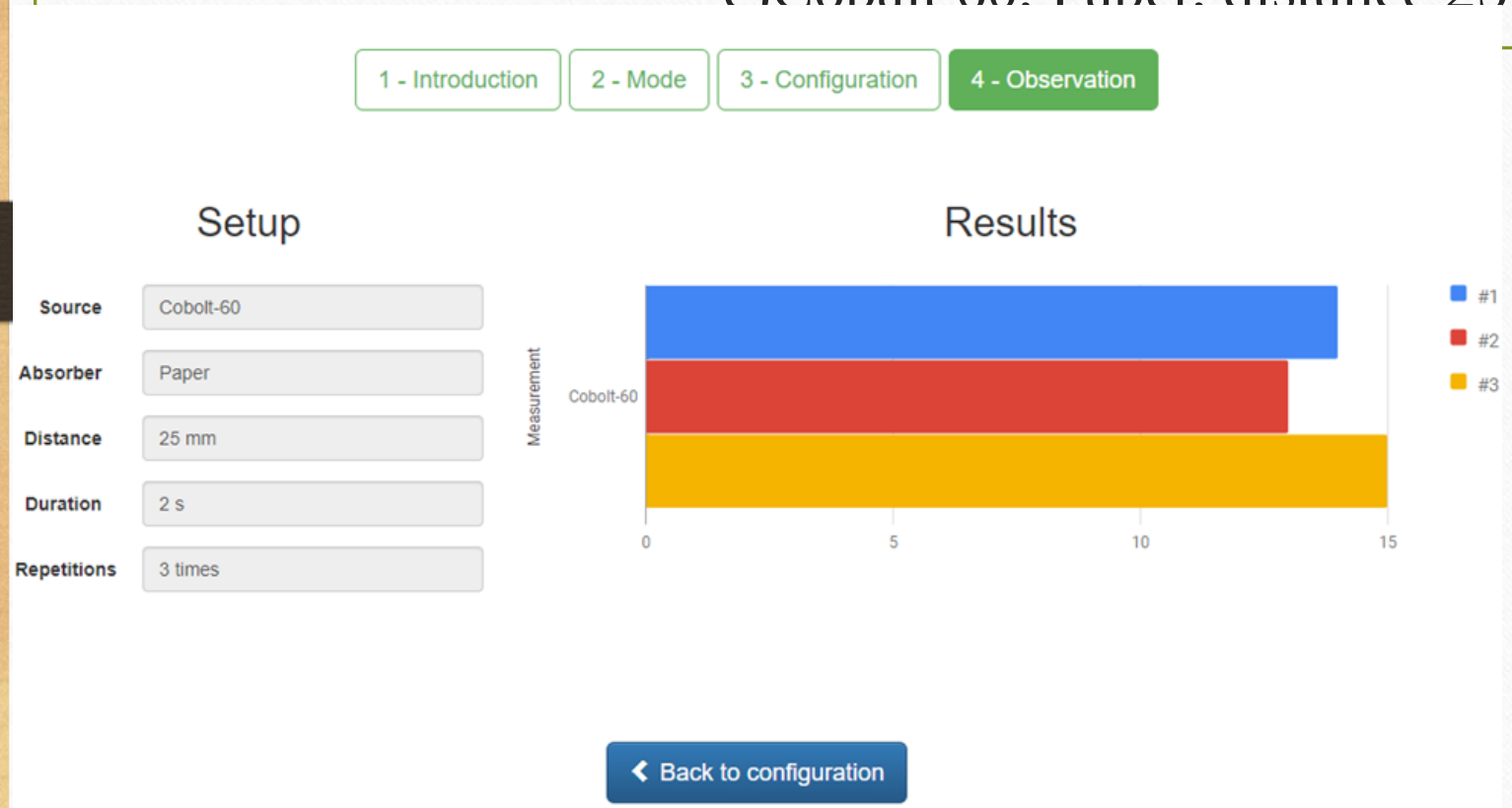
b)Strontium 90, lead disk, distance 80 mm

Measurement

- First measurement - 2
- Second measurement - 2
- Third measurement - 2

Task 2: Measurement of radioactive radiation with absorber

c)Cobalt 60, Paper, distance 25 mm



Measurement

- First measurement - 14
- Second measurement - 13
- Third measurement - 15

CONCLUSION:

- Americium - 241, Aluminum foil x4, distance 15 mm The values to be reported are very small, but not the same as for Strontium 90, lead disc, distance 80 mm.
- It follows that the lead disk is much more efficient as a barrier even at a far distance than the aluminum foil as a material.
- Concerning Cobalt 60, Paper, the distance of 25 mm from the emission of radioactive particles is the largest, because the paper does not screen radioactive radiation well enough.