

Additional material
Results table for Lab "Physics"

1) Gamma ray absorption

Background radiation

<i>In 5 min</i>	<i>In 1 min</i>
B =	b =

Results of measured transmitted radiation

<i>d/g cm⁻²</i>	<i>N' in 3 min</i>	<i>N in 1 min</i>	<i>N-b</i>
1.4			
2.2			
3.4			
4.3			
6.9			

$N_0 =$

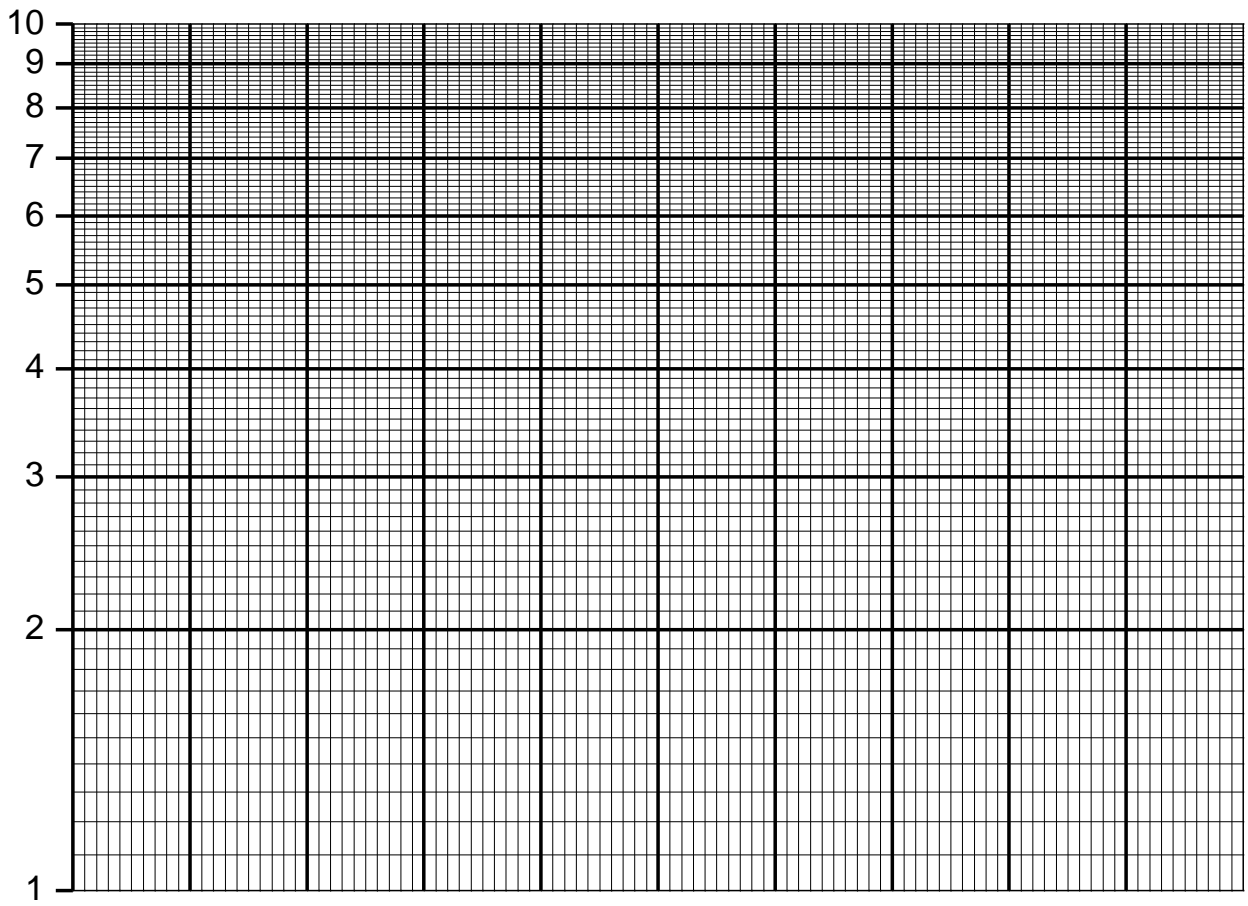
$d_{1/2} =$ gcm^{-2}

$E = h\nu =$ MeV

Mass absorption coefficient

$\mu/\rho =$ g^{-1}cm^2

Observations and conclusions:



2) Spectroscopy

Spectrum of Mercury lamp

No. of measurement	Line color	S	Wavelength /nm	Photon energy /eV
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				

Spectrum of iodine

No. of measurement	S ₁	S ₂	λ ₁ /m	λ ₂ /m	ν ₁ /Hz	ν ₂ /Hz	n	f = Δν = $\frac{\nu_1 - \nu_2}{n}$	k
1.									
2.									
3.									
4.									
5.									

The constant of elasticity which describes the connection between atoms in diatom molecule of iodine is connected to the oscillating frequency of the molecule by equation:

$$f = \frac{1}{2\pi} \sqrt{\frac{k}{M}} \quad k = 4 \pi M f^2$$

where M is reduced mass $M = \frac{m_1 m_2}{m_1 + m_2}$.

In the case of iodine molecule (I₂) $m_1 = m_2 = m = 2.12 \times 10^{-25}$ kg

M = kg

$\bar{k} =$ N/m

$\overline{\Delta k} =$ N/m

Observations and conclusions: