

SIMNRA User's Guide

Set-up your experiment

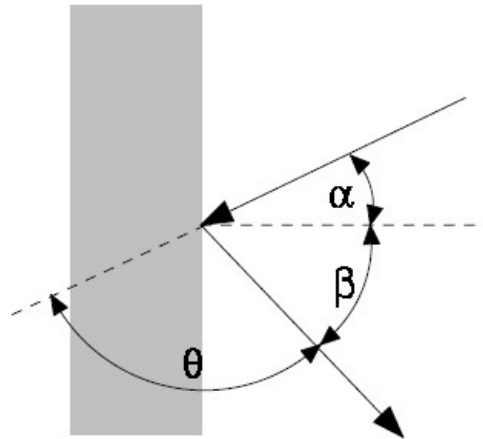
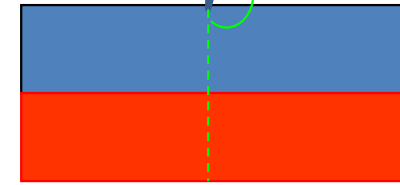


Figure 3.3.: Geometry of a scattering experiment. Incident angle α , exit angle β and scattering angle θ .

❖ Your task, plot the RBS spectrum for 2 MeV He on SiO₂/Cu

vacuum



50 nm SiO₂

50 nm Cu

Given:

2 MeV He $\theta = 170^\circ$

K Cu = 0.778

K O = 0.363

K Si = 0.565

$$\frac{d\sigma}{d\Omega} = \left(\frac{zZe^2}{4E_o} \right)^2 \times \left[\sin^{-4} \frac{\theta}{2} - 2 \left(\frac{m}{M} \right)^2 + \dots \right]$$

$$E = \left[\left(\frac{1}{1 + \frac{M}{m}} \right) \times \left(\cos \theta + \sqrt{\left(\frac{M}{m} \right)^2 - \sin^2 \theta} \right) \right]^2 E_o = kE_o$$

Z for

Cu:29

O:8

Si:14