Thomson scatter is an interaction that primarily occurs between photons and

A. Nuclei  
B. Orbital electrons  
C. Both nuclei and orbital electrons approximately equally

In the model for Thomson scatter, which of the following statements is false

A. The binding energy of the electrons is neglected.  
B. The induced electric field is of the same order of magnitude as the incident electric field.  
C. The oscillating electron generates electromagnetic radiation.

Assume a hypothetical scenario in which the classical electron radius is twice its present value. How would this affect the Thomson cross-section?

A. The new value would be four times the original cross-section.  
B. The new value would be twice the original cross-section.  
C. The new value would be half the original cross-section.  
D. The new value would not affect the cross-section.

Assume a hypothetical scenario in which the classical electron radius is twice its present value. How would this affect the Thomson cross-section?

A. The new value would be four times the original cross-section.

\[ \frac{d\sigma_0}{d\Omega} = \frac{r_0^2}{2} \left( 1 + \cos^2 \theta \right) \]
As the energy of the incident radiation increases, the differential scattering coefficient for classical scatter

A. Increases
B. Decreases
C. Remains the same.

The differential scattering coefficient for classical scatter is independent of energy.

If you place a 1 cm² detector at an angle of 90° to the direction of the incident photon, you can measure

A. Differential scatter coefficient per unit plane angle
B. Differential scatter coefficient per unit solid angle
C. Total scatter coefficient

Unlike Rayleigh scattering, Thomson scattering neglects

A. Attenuation of the radiation
B. Potential for ionization of electrons
C. Recoil of electrons
Which best describes the scattered radiation due to Rayleigh scatter?

A. It is approximately isotropic.
B. It is strongly peaked in the forward direction.
C. Its minimum value occurs at right angles.

Which best describes the scattered radiation due to Rayleigh scatter?

B. It is strongly peaked in the forward direction.