ABSTRAK

MODEL HAMBURAN PARTIKEL ALFARUTHERFORD DAN PENGUKURAN KONSTANTA HAMBURAN

Telah dilakukan eksperimen model hamburan partikel alfa Rutherford dan pengukuran nilai konstanta hamburan yang diperagakan oleh kelereng yang bergerak menuju piringan plastik. Piringan plastik ini berbentuk bukit. Bentuk permukaan bukit plastik dibuat mengikuti grafik $\frac{1}{r}$. Kelereng berperan sebagai partikel alfa yang digunakan untuk menembak inti atom. Gerak kelereng dari mulai bergerak sampai melewati bukit plastik direkam menggunakan kamera video. Sudut hamburan dan parameter impak diperoleh dari hasil analisis video menggunakan *software* LoggerPro. Sudut hamburan dipengaruhi oleh nilai parameter impak *b* dan ketinggian awal kelereng *H*. Sudut hamburan berbanding terbalik dengan parameter impak dan ketinggian awal kelereng. Sudut hamburan digunakan untuk menentukan nilai konstanta hamburan. Konstanta hamburan yang diperoleh ketika *H* tetap untuk setiap nilai *b* yang berbeda adalah$(3125 \pm 155)m^{-2}$. Sedangkan konstanta hamburan yang diperoleh ketika *b* tetap untuk setiap nilai*H*yang berbeda adalah$(6676 \pm 207)m^{-2}$.

Kata kunci:model hamburan partikel alfa, hamburan partikel alfa Rutherford, sudut hamburan, parameter impak, ketinggian awal kelereng, konstanta hamburan.

ABSTRACT

ALFA RUTHERHFORD PARTICLE SCATTERING MODEL AND SCATTERING CONSTANTS MEASUREMENT.

Alfa Rutherford particle scattering model experiment and scattering constants value measurement which were demonstrated by marble which were moving to the plastic disc has been done. The plastic disc has the shape of a hill. The shape of plastic hill surface was made following the grafic of $\frac{1}{r}$. Marble has a role as alfa particle which was used to shoot the nucleus. The moving of the marble from start moving until passing the plastic hill was recorded by video camera. Scattering angle and impact parameter were obtained from the video analysis result using LoggerPro software. Scattering angle was influenced by impact parameter value *b*and marble initial height*H*. Scattering angle inversely proportional with impact parameter and marble initial height. Scattering angle was used to determine scattering constants value. Scattering constants which was obtained when *H* was constant for each value of *b*which was different was $(3125 \pm 155)m^{-2}$. Whereas, scattering constants which was obtained when *b*is constant for each value of *H*which is different is $(6676 \pm 207)m^{-2}$.

Key words: particle alfa scattering model, alfa Rutherford particle scattering, scattering angle, impact parameter, marble initial height, scattering constants.