

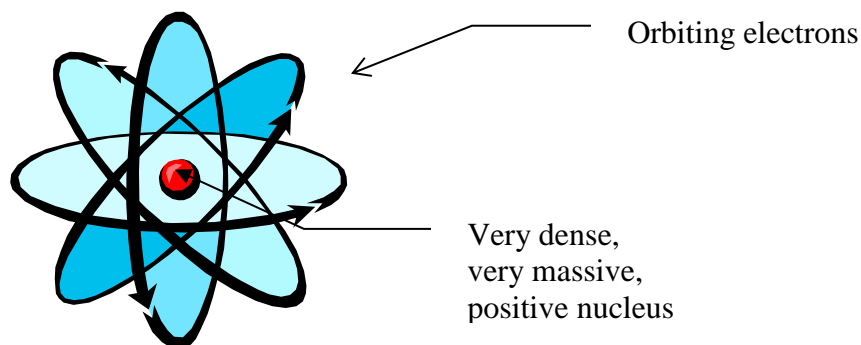
Physics 30 – Lesson 27
Rutherford's Model of the Atom

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- /1 1. α particles
/1 2. thin gold foil
/1 3. gold atoms
/1 4. The majority go straight through the gold foil. A few are deflected by very large angles.
/2 5. Particles which approach a nucleus head on are reflected straight back. The particles do not touch the nucleus. The (+) charges repel each other.
/1 6. Zinc sulfide glows when struck by a high speed particle. The zinc sulfide acts to indicate where the α particles go.
/1 7. The majority of an atom's volume is empty space.
/1 8. They pass right through the gold foil.
/1 9. They come close to a nucleus and are only slightly repelled.
/2 10. Positive charge \rightarrow nucleus
Mass \rightarrow nucleus

11.

/3



12.

Strengths:

- a small nucleus is orbited by electrons
- consistent with the gold foil experiment
- explains how electrons are easily removed
- simple to visualize and understand

Weaknesses:

/6

- how are electrons arranged?
- why do electrons not spiral into the nucleus?
- Electrons are experiencing a centripetal acceleration. Accelerating charged particles radiate EM radiation. No such thing is detected
- How do (+) charges stay together in the nucleus?