

IB Chemistry HL Notes

Atomic Structure

Isaac D. Lim

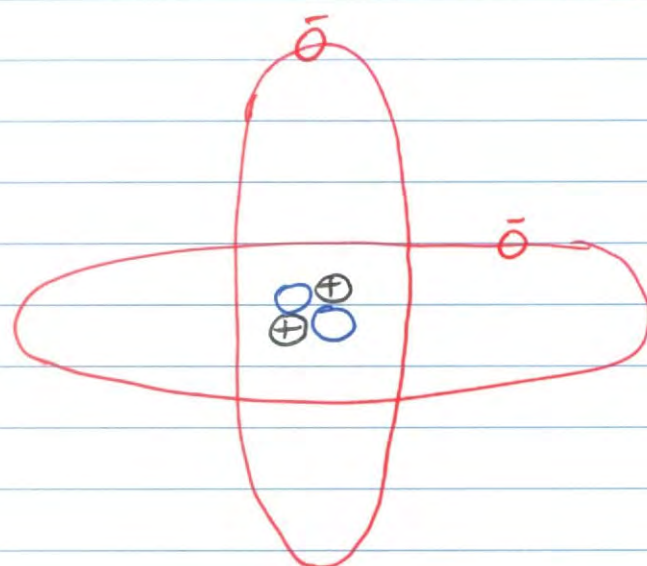
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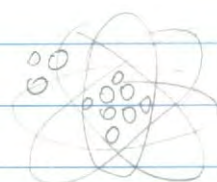
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The Bohr Diagram



He⁻ atom

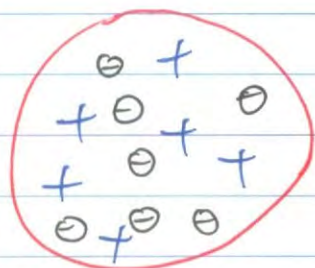


- J.J. Thompson
- Neils Bohr
- Ernest Rutherford

Cathode Rays

- * travel in a straight line (Maltese cross)
- * penetrate a thin sheet of metal
- * cause fluorescence
- * deflected by magnetic field (RHR)
- * deflected by electric field
- *

"Plum pudding" atom

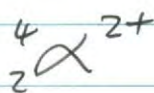


- * When -ve electrons are driven off,
a ~~part~~ve ion is left.
- * α particles are truly charged
and have mass of He nuclei

Rutherford's GOLD LEAF Experiment

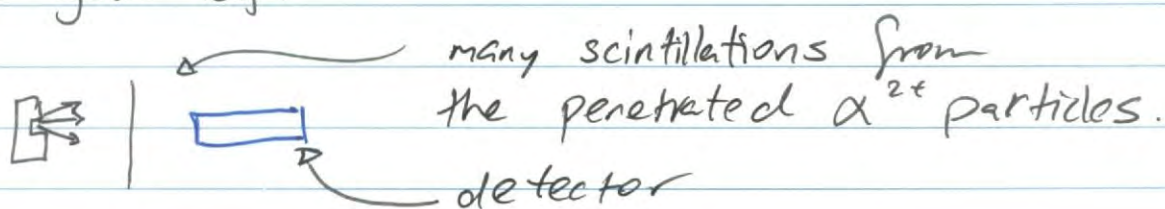


* Alpha particles are emitted only towards the gold leaf.

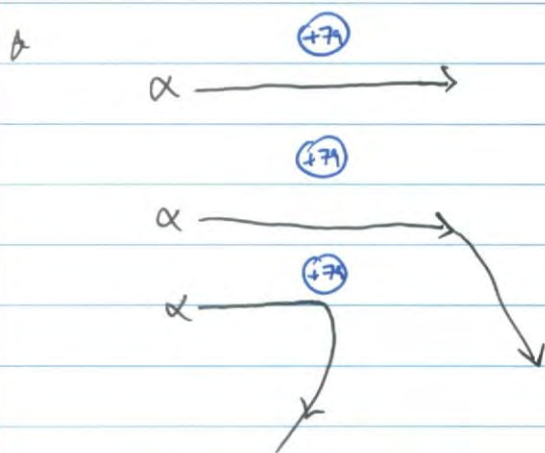


* Diffuse: spread out on the entire volume of the atom

* Since like above, α^{2+} will go through: penetrate the gold leaf.



* The Rutherford experiment determined the presence of a ~~nucleus~~ nucleus in an atom, and the mass of nucleus is the mass of the element.



* The α particles are able to pass through.

* The force of repulsion ensured that collisions never occurred.

* The volume of a nucleus is tiny compared to the volume - as a whole atom.

