

A brief introduction to Bohr

Kong Lingteng

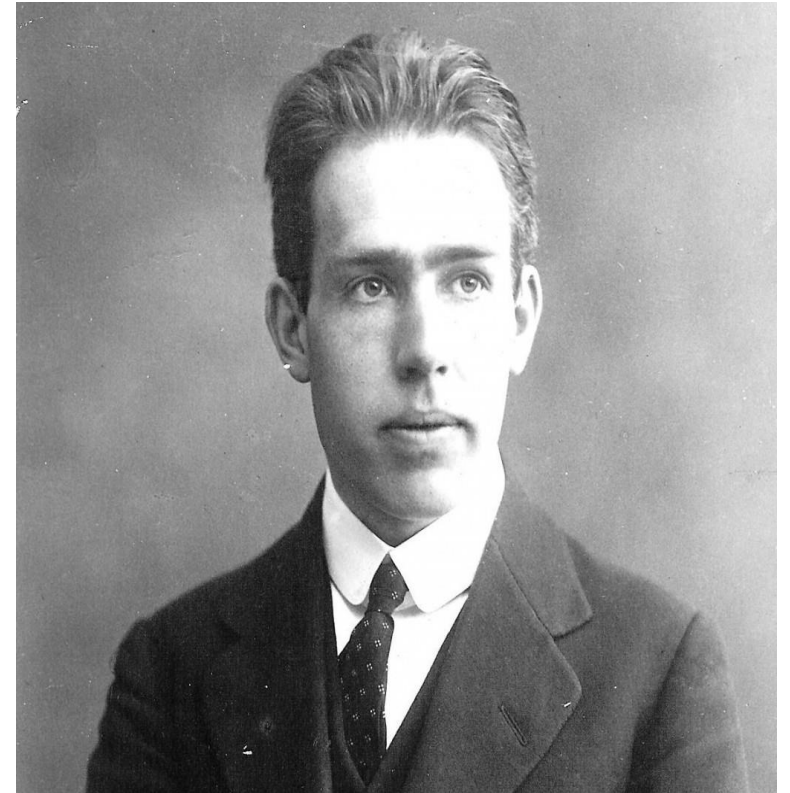
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- Niels Henrik David Bohr was a Danish physicist who made foundational contributions to understanding atomic structure and quantum theory, for which he received the Nobel Prize in Physics in 1922. Bohr was also a philosopher and a promoter of scientific research.



Early years

- Bohr was born in October 1885, his father was a professor of psychology. When Bohr was a child, his father bought tools for him and let Bohr practice mental work.
- Bohr like to point out others' mistakes, he always says "that's not prefect!" to his teachers. At a university party, he met a famous professor called Hoeffding. Instead of greeting, Borh pointed out that there were many mistakes in the book that Hoeffding wrote, making him very embarrassed. Bohr even interrupted the Denmark king's speech when he found mistakes.

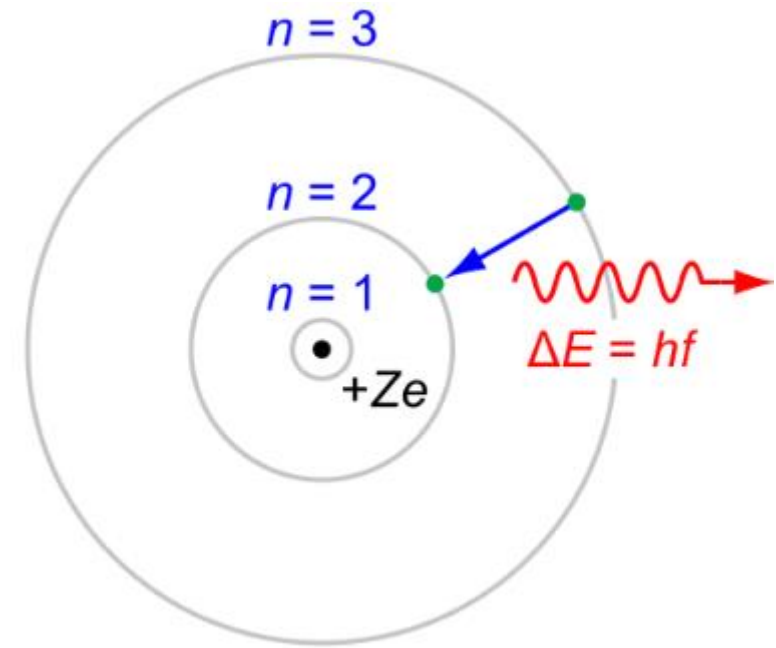


Main work

- Bohr model

According to Rutherford's experiment, electrons surrounding a small and dense core, however, according to the laws of classical mechanics the electron would lose energy, it would rapidly spiral inwards, collapsing into the core.

To solve this problem, Bohr proposed the Bohr model.



The electrons can only orbit stably, without radiating, in certain orbits. Electrons can only gain and lose energy by jumping from one allowed orbit to another

Main work

- Complementarity principle:

Complementarity principle holds that objects have certain pairs of complementary properties which cannot all be observed or measured simultaneously. It is impossible to be a particle and wave at the same time. Therefore, it is impossible to measure the full properties of the wave and particle at a particular moment.

It is the foundation of copenhagen interpretation.

Bohr–Einstein debates

- In 1905, Einstein proposed that light sometimes acts as a particle which he called a light quantum. Bohr was one of the most vocal opponents of the photon idea. Einstein also don't believe the uncertainty principle, he said: "God does not play dice", however, Bohr refuted: " You can't know for certain the outcome of any experiment".



Later years

- On 17 October 1947, Bohr was awarded the Order of the Elephant. Bohr designed his own coat of arms which featured a taijitu and a motto in Latin: *contraria sunt complementa*, "opposites are complementary".
- After the Second World War, twelve European countries banded together to create CERN, a research organisation designed to undertake Big Science. Bohr pledged his support to CERN in February 1952.

