



Karl Manne Georg Siegbahn

1886 -1978

Awarded the Nobel Prize for Physics in 1924

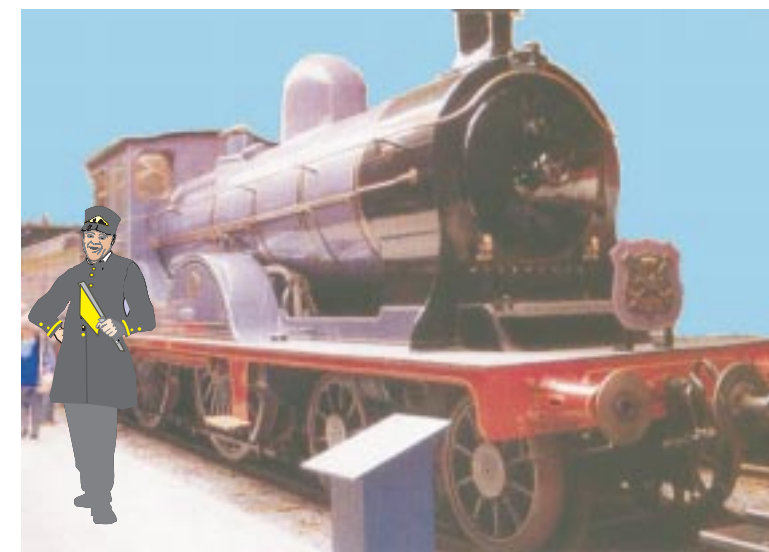
Karl Manne Georg Siegbahn was a distinguished physicist who made a significant contribution to the field of X-ray spectroscopy.

In the simple model of the atom (much altered since that time) there are electrons circuiting in certain 'allowed' orbits about the nucleus. When electrons are excited to more energetic orbits (for example, by electrons striking the target in an X-ray tube) they then fall back to the lower orbit, emitting energy in the form of photons. The energy of a photon equals the energy difference between the higher and lower orbit. An accurate knowledge of X-ray wavelengths (of the spectral lines) allows a deep probe into atomic structure.

A gifted engineer and instrument designer, Siegbahn constructed an X-ray tube giving a beam of great intensity. His measuring system needed a perfect vacuum. Improving the vacuum pump and modifying the spectrometer he achieved high accuracy measuring wavelengths of the spectral lines.

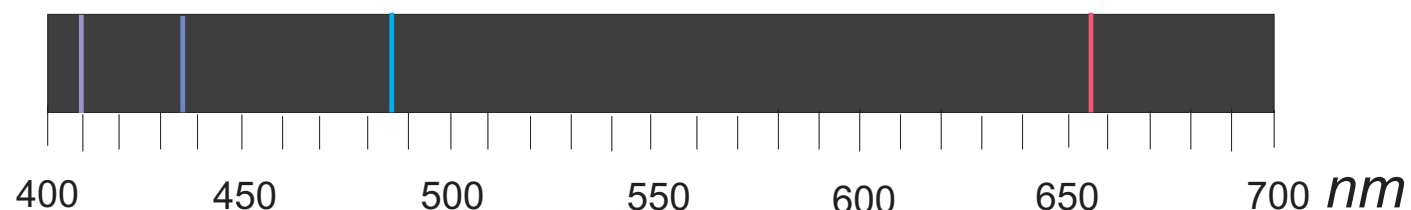
Siegbahn succeeded in measuring very precisely the X-ray spectra of the **elements from sodium to uranium**. He found complete support for the model of the atom proposed by Niels Bohr.

Karl Manne Georg Siegbahn was born in Örebro, Sweden, in 1886. His father was a station master on the railway. After his father's retirement, the family settled in Lund.

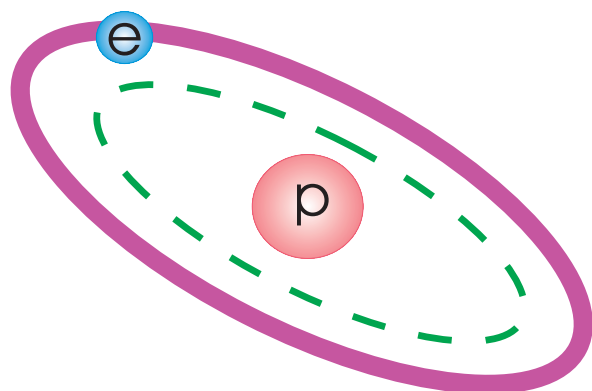


His father was a station master

H



The visible line spectrum of excited hydrogen atoms



*His work supported
Niels Bohr's model
of the atom*

Siegbahn entered the University of Lund in 1906. He studied astronomy, chemistry, mathematics, and physics there. He eventually received his master's degree after additional study at the universities of Göttingen and Munich in 1910 and he obtained his doctorate in 1911.

Siegbahn remained at the University as a lecturer and succeeded the famous Johannes Rydberg as professor of physics.

After his visits to Paris and Heidelberg, Siegbahn began to study X-ray spectroscopy and devoted the rest of his life to this problem.

Karl married Karin Högbohm, and they had two sons, the younger of whom, Kai Siegbahn, also became a noted physicist and Nobel Prize winner.

When, in 1937, the Swedish Royal Academy of Sciences created the Nobel Institute of Physics in Stockholm, Siegbahn was appointed its first director. He oversaw the constructions of Sweden's first particle accelerator.

Siegbahn died at the age of ninety one. He was described by his colleagues as a 'man of warm and unpretentious nature'.

S.E.