

The Zeeman Effect. /My opinion/.

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The Zeeman Effect. /My opinion/.

1.

In the 1894 Zeeman had shown that extraneous spectral lines appeared when the atoms were placed in a magnetic field. This phenomena became known as the " Zeeman effect". The physicists were stumped.

2.

In 1916 Sommerfeld studying this process said that the splitting depended on some non-sizable coefficient (α) that is equal to $1/137$. It was called as fine structure constant. Nobody could understand what sense of this constant in the modern physics, and on Feynman's expression, which he said with humour this quantity is " by the god given damnation to all physicists ". Sommerfeld found this constant (α) using the formula $\alpha = e^2/hc$. We can rewrite this formula as: $e^2 = hca$ where:
 $h = h/2\pi$ – is an impulse (Goudsmit–Uhlenbeck.)
 c – is constant speed of light quantum.
 a – is coefficient of volume expansion.

Electron, as a ball, has volume, but nobody thought about this fact. And this volume isn't constant. The electron can change its volume as all other its parameters. The parameters of electron were found by experiment. And Sommerfeld found the lack constant of electron, and full formula of it is: $e^2 = hac$. Now it is possible to see that there are two kinds of electron: positive $+e = \vec{O}ac$ and negative $-e = \vec{O}ac$ (antielectron– positron). But such formulas and description of the electron are not given in any textbook. Similar double state of the electron was formulated by Dirac. In 1928 he wrote two formulas of the energy of the electron: positive $+E = Mc^2$ and negative $E = Mc^2$ (antielectron– positron). The Sommerfeld's and Dirac's formulas say that electron can be in two states:

- a) positive– it has mass, charge, volume, angular momentum.
- b) negative all this parameters change and electron turns into photon/ light quanta. And if QED says that electron becomes infinite at interaction with vacuum (that is forbidden by " The Law of conservation and transformation of energy") it also means that electron

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changes its parameters into light quantum parameters..

3.

Why does Sommerfeld's formula contain constant parameter c – speed of light quantum ?

First it shows that electron somehow is connected with photon.

Second the formula describes situation when electron cannot more live under " Zeeman's conditions" and emits from the atom (therefore the spectrum of atom changes), and has possibility to fly with constant speed of photon $c=1$.

4.

Every electron's jump from a