Schrödinger Equation of Hydrogen Atom in Atomic Unites, Theory of Chirality and the Territory of Modern Physics

(viXra:2103.0088v3)

Gang Chen†, Tianman Chen, Tianyi Chen

Guangzhou Huifu Research Institute Co., Ltd., Guangzhou, P. R. China

7-20-4, Greenwich Village, Wangjianglu 1, Chengdu, P. R. China

†Correspondence to: gang137.chen@connect.polyu.hk

Dedicated to Prof. Albert Sun-Chi Chan on the occasion of his 70th birthday

Abstract

This paper is a subsequent paper to our previous papers "Chen's Formulas of the Fine-structure Constant" (viXra:2002.0203) and "Integrated Formulas of the Fine-structure Constant and Feigenbaum Constants" (viXra:2102.0162). In light of the basic concepts illustrated in the above stated previous papers that there are two values of the fine-structure constant (α_1 and α_2) and there are relationships such as $\alpha_1(\delta/\gamma_1)^2(2\pi)=1$ and $\alpha_2(\delta\alpha/\gamma_2)^2=1$ between the fine-structure constant (α_1 and α_2) and Feigenbaum constants (δ and α), in this paper we deduced Schrödinger equation of hydrogen atom in atomic unites in a concise, reasonable and beautiful form. In the end of this paper, all theories in our previous papers are named to be Theory of Chirality, and a picture of the territory of modern physics including Theory of Relativity, Quantum Theory, Chaos Theory and Theory of Chirality is given. By the way, we also give formulas of anomalous magnetic momentum ((g-2)/2) of electron and muon.

Keywords: Schrödinger equation; hydrogen atom; the fine-structure constant; Feigenbaum constants; Theory of Chirality, territory of modern physics.

1. Schrödinger Equation of Hydrogen Atom in Atomic Unites

In our previous paper[1], we gave the following deduction process.

Stationary Schrodinger Equation: $-\dfrac{\hbar^2}{2m}\nabla^2\psi+U\psi=E\psi,$

applied to hydrogen atom: $\nabla^2\psi+\dfrac{2m_e}{\hbar^2}(E+\dfrac{e^2}{4\pi\varepsilon_0 r})\psi=0,\ E=-\dfrac{m_e e^4}{2n^2(4\pi\varepsilon_0)^2\hbar^2}$

With substitution and simlification：

$$\frac{2m_e}{\hbar^2}(\frac{m_e e^4}{2n^2(4\pi\varepsilon_0)^2\hbar^2}-\frac{e^2}{4\pi\varepsilon_0 r})\psi=\nabla^2\psi,$$

$$[\frac{1}{n^2}(\frac{m_e e^2}{4\pi\varepsilon_0\hbar^2})^2-\frac{2}{r}\frac{m_e e^2}{4\pi\varepsilon_0\hbar^2}]\psi=\nabla^2\psi,$$

$$[\frac{1}{n^2}(\frac{e^2}{4\pi\varepsilon_0\hbar c}\frac{m_e c}{\hbar})^2-\frac{2}{r}\frac{e^2}{4\pi\varepsilon_0\hbar c}\frac{m_e c}{\hbar}]\psi=\nabla^2\psi,$$

As $\sqrt{\alpha_1\alpha_2}=\frac{v_e}{c}=\frac{e^2}{4\pi\varepsilon_0\hbar c}$, $\lambda_e=\frac{h}{m_e c}$ and $\alpha_1=\frac{\lambda_e}{2\pi a_0}$:

$$[\frac{1}{n^2}(\sqrt{\alpha_1\alpha_2}\frac{2\pi}{\lambda_e})^2-\frac{2}{r}\sqrt{\alpha_1\alpha_2}\frac{2\pi}{\lambda_e}]\psi=\nabla^2\psi,$$

$$[\frac{1}{n^2(\lambda_e/2\pi/\sqrt{\alpha_1\alpha_2})^2}-\frac{2}{(\lambda_e/2\pi/\sqrt{\alpha_1\alpha_2})r}]\psi=\nabla^2\psi,$$

$$[\frac{1}{n^2 a_0{}^2(\alpha_1/\alpha_2)}-\frac{2}{a_0 r\sqrt{\alpha_1/\alpha_2}}]\psi=\nabla^2\psi$$

As $\alpha_1/\alpha_2\approx 1$, simplyfied to: $[\frac{1}{n^2 a_0{}^2}-\frac{2}{a_0 r}]\psi=\nabla^2\psi$

factor 2 seems not beautiful

In atomic units (au: $e=m_e=\hbar=1$ and $\varepsilon_0=\frac{1}{4\pi}$),

$$a_{0/au}=\frac{4\pi\varepsilon_0\hbar^2}{m_e e^2}=1,\quad v_{e/au}=\frac{e^2}{4\pi\varepsilon_0\hbar}=1,\quad c_{au}=\frac{v_{e/au}}{\alpha_c}=\frac{1}{\alpha_c}=\frac{1}{\sqrt{\alpha_1\alpha_2}}$$

$$[\frac{1}{n^2(\alpha_1/\alpha_2)}-\frac{2}{r_{au}\sqrt{\alpha_1/\alpha_2}}]\psi=\nabla_{au}{}^2\psi$$

$$(\frac{c_{au}{}^2}{\alpha_1{}^2 n^2}-\frac{2c_{au}}{\alpha_1 r_{au}})\psi=\nabla_{au}{}^2\psi$$

the above equation could be called Schrodinger eqution of hydrogen atom in atomic unites, the later form of the equation shows factor 2 is still reasonable and beautiful.

As $\alpha_1/\alpha_2\approx 1$，simplyfied to： $[\frac{1}{n^2}-\frac{2}{r_{au}}]\psi=\nabla_{au}{}^2\psi$

Discover: 2018/4-6; Revise: 2019/12/13 (add au form)

$$\alpha_1/\alpha_2=\frac{137.035999111818}{137.035999037435}=1.0000000005428=1+\frac{23\cdot 59}{25\cdot 10^{11}}=(1+\frac{23\cdot 59}{50\cdot 10^{11}})^2$$

$$\sqrt{\alpha_1/\alpha_2}=1+\frac{23\cdot 59}{50\cdot 10^{11}}=1.0000000002714$$

Relations to nuclides: $^{23}_{11}Na_{12}$ $^{50,51}_{23}V_{27,28}$ $^{55}_{25}Mn_{30}$ $^{99,100}_{44}\mathrm{Ru}_{55,56}$ $^{105}_{46}Pd_{59}$ $^{119}_{50}Sn_{69}$ $^{137}_{56}Ba_{81}$ $^{141}_{59}\mathrm{Pr}_{82}$ $^{169}_{69}Tm_{100}$ $^{185,187}_{75}\mathrm{Re}_{110,112}$ $^{226}_{88}Ra^{*}_{138}$

$2019/8/28-29$

However, in the above deduction, the later form of Schrödinger equation of hydrogen atom in atomic unites is not fully correct, and needs correction as follows.

$$\left(\frac{c_{au}{}^2}{\alpha_1{}^2 n^2} - \frac{2c_{au}}{\alpha_1 r_{au}}\right)\psi = \nabla_{au}{}^2\psi$$

above eqution is not fully correct, and is revised to be:

$$\left(\frac{\alpha_2{}^2 c_{au}{}^2}{n^2} - \frac{2\alpha_2 c_{au}}{r_{au}}\right)\psi = \nabla_{au}{}^2\psi$$

2021 / 2 / 27

2. Integrated Formulas of the Fine-structure Constant and Feigenbaum Constants

In our previous papers[5,6], some integrated formulas of the fine-structure constant and Feigenbaum constants were given, the following are their summary.

$$2\pi = 2\cdot 3.14159265358979$$

$$(2\pi)_{Chen-k} = e^2 \frac{e^2}{(\frac{2}{1})^3} \frac{e^2}{(\frac{3}{2})^5} \frac{e^2}{(\frac{4}{3})^7} \cdots \frac{e^2}{(\frac{k+1}{k})^{2k+1}}$$

The Fine-structure Constant:

$$\alpha_1 = \frac{\lambda_e}{2\pi a_0} = \frac{36}{7\cdot(2\pi)_{Chen-112}} \frac{1}{112 + \frac{1}{75^2}} = 1/137.035999037435$$

$$\alpha_2 = \frac{2\pi r_e}{\lambda_e} = \frac{13\cdot(2\pi)_{Chen-278}}{100} \frac{1}{112 - \frac{1}{64\cdot 3\cdot 29}} = 1/137.035999111818$$

Feigenbaum Constants: $\delta = 4.66920160910299$, $\alpha = 2.50290787509589$

$$\alpha_1(\delta/\gamma_1)^2(2\pi) = 1$$

$$\gamma_1 = 1 - \frac{1}{47\cdot 109} + \frac{1}{27\cdot 7\cdot(3\cdot 8\cdot(3\cdot 8\cdot(4\cdot 137-1)-1)-1)} = 0.999804818668238$$

$$\frac{1}{\gamma_1} = 1 + \frac{1}{2\cdot 13\cdot 197} - \frac{16\cdot 7\cdot 17\cdot(16\cdot 3\cdot 23-1)}{125\cdot 10^{12}} = 1.00019521943495$$

$$\gamma_1{}^2 = 1 - \frac{1}{13\cdot 197} + \frac{1}{2\cdot 7\cdot 41\cdot(4\cdot 5\cdot 19\cdot 31-1)} = 0.99960967543223$$

$$\frac{1}{\gamma_1{}^2} = 1 + \frac{1}{512\cdot 5} - \frac{1}{4\cdot 9\cdot 7\cdot 17\cdot 19\cdot 83} = 1.00039047698053$$

$$\alpha_1(\delta/\gamma_{1-Chen-25\cdot 17})^2(2\pi)_{Chen-25\cdot 17} = 1$$

$$(2\pi)_{Chen-25\cdot 17} = e^2 \frac{e^2}{(\frac{2}{1})^3} \frac{e^2}{(\frac{3}{2})^5} \frac{e^2}{(\frac{4}{3})^7} \cdots \frac{e^2}{(\frac{2\cdot 3\cdot 71}{25\cdot 17})^{23\cdot 37}} = 6.28564399787948$$

$$\gamma_{1-Chen-25\cdot17}=1+\frac{1}{2\cdot79\cdot109\cdot139-\frac{3}{25}}=1.00000041773574$$

$$\frac{1}{\gamma_{1-Chen-25\cdot17}}=1-\frac{1}{2\cdot79\cdot109\cdot139+\frac{22}{25}}=0.999999582264432$$

$$\gamma_{1-Chen-25\cdot17}{}^{2}=1+\frac{1}{128\cdot9\cdot(2\cdot3\cdot173+1)+\frac{7}{10}}=1.0000008354717$$

$$\frac{1}{\gamma_{1-Chen-25\cdot17}{}^{2}}=1-\frac{1}{2\cdot5\cdot7\cdot(2\cdot83\cdot103+1)-\frac{9}{29}}=0.999999164529037$$

$\alpha_2(\delta\alpha/\gamma_2)^2=1$

$$\gamma_2=1-\frac{1}{5\cdot7\cdot17}+\frac{1}{4\cdot3\cdot17\cdot23\cdot137-\frac{11}{59}}=0.998320883415699$$

$$\frac{1}{\gamma_2}=1+\frac{1}{2\cdot27\cdot11}-\frac{1}{5\cdot17\cdot(16\cdot3\cdot157+1)+\frac{16}{17}}=1.00168194075892$$

$$\gamma_2{}^{2}=1-\frac{1}{2\cdot149}+\frac{1}{29\cdot31\cdot(2\cdot3\cdot49\cdot13+1)-\frac{16}{19}}=0.996644586263908$$

$$\frac{1}{\gamma_2{}^{2}}=1+\frac{1}{27\cdot11}-\frac{1}{2\cdot3\cdot25\cdot11\cdot(4\cdot11\cdot47+1)-\frac{2}{5}}=1.00336671044256$$

$\frac{2\pi}{(\alpha\gamma)^2}=1$

$$\gamma=1+\frac{1}{32\cdot3\cdot7}-\frac{1}{23\cdot151\cdot173+\frac{9}{4\cdot7}}=1.00148643087192$$

$$\frac{1}{\gamma}=1-\frac{1}{32\cdot3\cdot7+1}+\frac{1}{2\cdot41\cdot(2\cdot3\cdot25\cdot49-1)-\frac{1}{6}}=0.99851577532546$$

$$\gamma^2=1+\frac{1}{16\cdot3\cdot7}-\frac{1}{3\cdot13\cdot31\cdot(2\cdot9\cdot41+1)-\frac{1}{22}}=1.0029750712205$$

$$\frac{1}{\gamma^2}=1-\frac{1}{16\cdot3\cdot7+1}+\frac{1}{8\cdot81\cdot19\cdot73+\frac{1}{3\cdot13}}=0.997033753573803$$

3. The Final Form of Schrödinger Equation of Hydrogen Atom in Atomic Unites

As we have:

$$\left(\frac{\alpha_2{}^2 c_{au}{}^2}{n^2}-\frac{2\alpha_2 c_{au}}{r_{au}}\right)\psi=\nabla_{au}{}^2\psi$$

$$\alpha_1(\delta/\gamma_1)^2(2\pi)=1,\quad \alpha_2(\alpha\delta/\gamma_2)^2=1$$

So: $$\left(\frac{c_{au}{}^2}{(\alpha\delta/\gamma_2)^4 n^2}-\frac{2c_{au}}{(\alpha\delta/\gamma_2)^2 r_{au}}\right)\psi=\nabla_{au}{}^2\psi$$

2021/2/27

Define:

$$c_{au}=\frac{c}{v_e}=\frac{1}{\sqrt{\alpha_1\alpha_2}}=\frac{1}{\sqrt{\frac{\lambda_e}{2\pi a_0}\frac{2\pi r_e}{\lambda_e}}}=\sqrt{\frac{a_0}{r_e}}=\sqrt{2\pi(\delta/\gamma_1)^2(\alpha\delta/\gamma_2)^2}=\frac{\delta^2\alpha}{\gamma_1\gamma_2}\sqrt{2\pi}$$

c_{au}: the speed of ligth in atomic unites

v_e : the line speed of electron in ground state in hydrogen atom in Bohr model

$$c_{au-Ch}=\sqrt{\frac{\alpha_2}{\alpha_1}}=\alpha_2 c_{au}=\frac{c_{au}}{(\alpha\delta/\gamma_2)^2}=\frac{\sqrt{2\pi}}{\alpha\gamma_1/\gamma_2}=\frac{2\pi\sqrt{r_e a_0}}{\lambda_e}$$

$$=1-\frac{23\cdot 59}{50\cdot 10^{11}}=0.9999999994572$$

Relationships with nuclides: $^{50,51}_{23}V_{27,28}$ $^{105}_{46}Pd_{59}$ $^{119}_{50}Sn_{69}$ $^{169}_{69}Tm_{100}$

c_{au-Ch} could be called chaotic speed of light in atomic unites or Chen speed

So: $$\left(\frac{c_{au-Ch}{}^2}{n^2}-\frac{2c_{au-Ch}}{r_{au}}\right)\psi=\nabla_{au}{}^2\psi$$

the above last formula could be called:

the final form of Schrodinger equation of hydrogen atom in atomic unites

2021/2/28

Note that if $\alpha_1=\alpha_2$, the above equation will be simplified to:

$$\left(\frac{1}{n^2}-\frac{2}{r_{au}}\right)\psi=\nabla_{au}{}^2\psi$$

But this simplest equation is not reasonable and beautiful because the factor 2 is very strange and in lack of reasonability and beauty. On the other hand, the consistence of $c_{au-Ch}{}^2$ and $2c_{au-Ch}$ is very good, reasonable and beautiful. So our basic concept that there are two values of the fine-structure constant, i.e., α_1 and α_2, is critical for Schrödinger equation of hydrogen atom to be a reasonable and beautiful equation. This also demonstrates all theories in our previous papers should be correct.

4. Theory of Chirality

All theories in our previous papers[1-6], registered as copyrights[7-9], other unopened as manuscripts (such as "New Theory of Chemical Bonds" written by us in 2009) and in this paper are hereby named to be Theory of Chirality. The main principles and conclusions of Theory of Chirality are listed as follows.

$$\text{Chirality} = \pm 2\pi / \mp 2\pi \quad (2\pi)_{Chen-k} = e^2 \frac{e^2}{(\frac{2}{1})^3} \frac{e^2}{(\frac{3}{2})^5} \frac{e^2}{(\frac{4}{3})^7} \cdots \frac{e^2}{(\frac{k+1}{k})^{2k+1}}$$

$$\alpha_1 = \frac{\lambda_e}{2\pi a_0} = \frac{36}{7\cdot(2\pi)_{Chen-112}} \frac{1}{112+\frac{1}{75^2}} = 1/137.035999037435$$

$$1/\alpha_1 = 56+81+\frac{1}{28-\frac{13\cdot(2\cdot 56\cdot 11-1)}{3\cdot 5\cdot(2\cdot 56\cdot 43+1)}} = 137.035999037435$$

$$\alpha_2 = \frac{2\pi r_e}{\lambda_e} = \frac{13\cdot(2\pi)_{Chen-278}}{100} \frac{1}{112-\frac{1}{64\cdot 3\cdot 29}} = 1/137.035999111818$$

$$1/\alpha_2 = 56+81+\frac{1}{28-\frac{2\cdot(16\cdot 27-1)}{3\cdot(16\cdot 81+1)}} = 137.035999111818$$

$$c_{au} = \frac{c}{v_e} = \frac{1}{\alpha_c} = \frac{1}{\sqrt{\alpha_1\alpha_2}} = \sqrt{112\times(168-\frac{1}{3}+\frac{1}{12\cdot 47}-\frac{1}{14\cdot 112\cdot(2\cdot 173+1)})}$$
$$= 137.035999074626$$

$$c_{au} = 56+81+\frac{1}{28-\frac{5\cdot(4\cdot 3\cdot 7\cdot 17-1)}{2\cdot 5\cdot(4\cdot 5\cdot 7\cdot 23+1)+1}} = 137.035999074626$$

$$2\pi \approx \frac{4\cdot 157}{100} \approx \frac{4\cdot 11}{7} \approx \frac{4\cdot 5\cdot 71}{2\cdot 113} \quad {}^{50}_{22}Ti_{28}\ {}^{71}_{31}Ga_{40}\ {}^{100}_{44}Ru_{56}\ {}^{120,122}_{50}Sn_{70,72}\ {}^{226}_{88}Ra^{*}_{138}\ {}^{257}_{100}Fm^{*}_{157}\ {}^{4\cdot 71}_{113}Nh^{ie}_{171}$$

$$136 = 8\cdot 17,\ 138=6\cdot 23 \quad {}^{136,137,138}_{56}Ba_{80,81,82}\ {}^{222}_{86}Rn^{*}_{136}\ {}^{223}_{87}Fr^{*}_{136}\ {}^{226}_{88}Ra^{*}_{138}\ {}^{227}_{89}Ac^{*}_{138}\ {}^{285}_{112}Cn^{*}_{173}\ {}^{2\cdot 173}_{137}Fy^{ie}_{209}$$

$$\frac{1}{\delta} = \frac{1}{4.66920160910299} = \frac{1}{4} - \frac{1}{27} + \frac{1}{4\cdot 9\cdot 23} - \frac{1}{2\cdot 3\cdot 7\cdot 23\cdot(2\cdot 3\cdot(4\cdot 3\cdot 11-1)+1)+\frac{2\cdot 23}{3\cdot 19}}$$

$$\frac{1}{\alpha} = \frac{1}{2.50290787509589} = \frac{1}{2} - \frac{1}{9} + \frac{1}{3\cdot 31} - \frac{1}{23\cdot(8\cdot 3\cdot 17+1)} + \frac{1}{17\cdot 23\cdot(8\cdot 3\cdot 11^4-1)}$$

$$\alpha_1(\delta/\gamma_1)^2(2\pi) = 1$$

$$\gamma_1 = 1-\frac{1}{47\cdot 109}+\frac{1}{27\cdot 7\cdot(3\cdot 8\cdot(3\cdot 8\cdot(4\cdot 137-1)-1)-1)} = 0.999804818668238$$

$$\alpha_2(\alpha\delta/\gamma_2)^2 = 1, \quad \gamma_2 = 1-\frac{1}{5\cdot 7\cdot 17}+\frac{1}{4\cdot 3\cdot 17\cdot 23\cdot 137-\frac{11}{59}} = 0.998320883415699$$

$$\frac{2\pi}{(\alpha\gamma)^2}=1,\quad \gamma=1+\frac{1}{32\cdot3\cdot7}-\frac{1}{23\cdot151\cdot173+\frac{9}{4\cdot7}}=1.00148643087192$$

$$(\frac{a_2{}^2c_{au}{}^2}{n^2}-\frac{2a_2c_{au}}{r_{au}})\psi=\nabla_{au}{}^2\psi,\quad (\frac{c_{au-Ch}{}^2}{n^2}-\frac{2c_{au-Ch}}{r_{au}})\psi=\nabla_{au}{}^2\psi$$

$$c_{au}=\frac{c}{v_e}=\frac{1}{\sqrt{\alpha_1\alpha_2}}=\frac{a_0}{r_e}=\frac{\delta^2\alpha}{\gamma_1\gamma_2}\sqrt{2\pi}$$

$$c_{au-Ch}=\sqrt{\frac{\alpha_2}{\alpha_1}}=\alpha_2c_{au}=\frac{c_{au}}{(\alpha\delta/\gamma_2)^2}=\frac{\sqrt{2\pi}}{\alpha\gamma_1/\gamma_2}=\frac{2\pi\sqrt{r_ea_0}}{\lambda_e}=1-\frac{23\cdot59}{50\cdot10^{11}}$$

……

5. The Territory of Modern Physics

The territory of modern physics including Theory of Relativity, Quantum Theory, Chaos Theory and Theory of Chirality is shown as follows (**Fig. 1**).

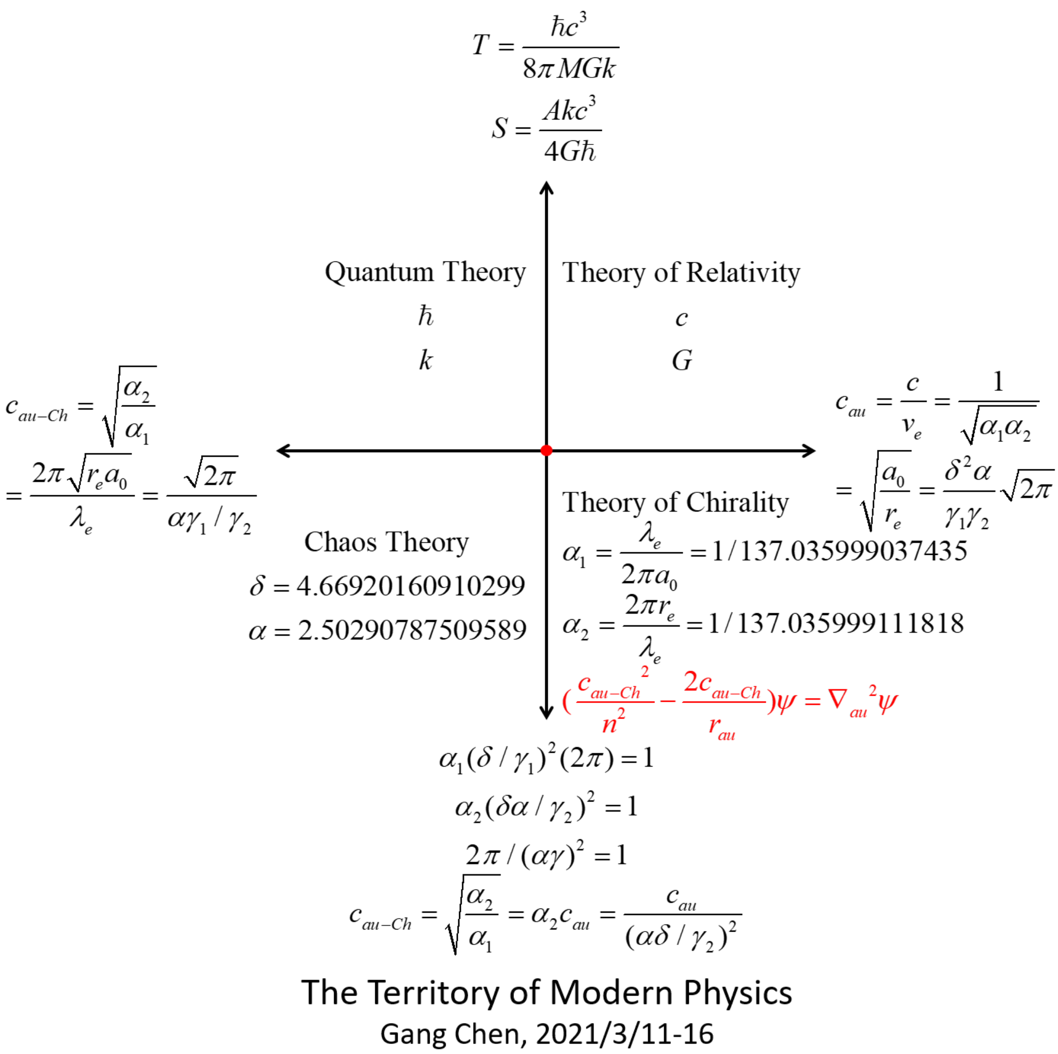

Fig. 1

There are four coordinate quadrants or plates in the territory of modern physics (standing for the whole physics). In each plate, theories in it could be locally perfect, but there should be some problems which couldn't be solved locally. For example, Standard Model should be locally perfect in the plate of Quantum Theory, but it can't solve the problems of the fine-structure constant and the masses of elementary particles, on the other hand, these problems can be solved in the plate of Theory of Chirality[1-4]. There are some formulas on the axes, for examples, Hawking's formulas about black hole are the borderline between Theory of Relativity and Quantum Theory. Here we also try to give the formulas for another three borderlines. Most importantly, the coordinate origin (center of the territory of modern physics) should be Schrödinger equation of hydrogen atom in atomic unites (shown in red color), so it should be the most important equation in physics or in the universe. In addition, every theory in each plate couldn't be absolutely accurate to reality or experiment measurements because there should be interactions or collisions among the plates and incurring tiny and unpredictable errors.

6. Formulas of Anomalous Magnetic Momentum of Electron and Muon

As anomalous magnetic momentum ((g-2)/2) of electron is supposed to relate to the fine-structure constant according to Standard Model, and the fine-structure constant is supposed to relate to nuclides according to our theories[1-4], we here give some formulas of magnetic momentum (g) and anomalous magnetic momentum ((g-2)/2) of electron and muon and suppose them to relate to nuclides.

$$a_e = \frac{g_e - 2}{2} = \frac{1}{2\cdot(16\cdot 27 - 1)} - \frac{1}{2\cdot 7\cdot 11\cdot(16\cdot 3\cdot(4\cdot 7\cdot 11 - 1) + 1)} = 0.00115965218135$$

$$g_e = 2(1 + \frac{1}{2\cdot(16\cdot 27 - 1)} - \frac{1}{2\cdot 7\cdot 11\cdot(16\cdot 3\cdot(4\cdot 7\cdot 11 - 1) + 1)}) = 2.00231930436270$$

$^{16,17,18}_{8}O_{8,9,10}$ $^{23}_{11}Na_{12}$ $^{28,30}_{14}Si_{14,16}$ $^{32,33,34,36}_{16}S_{16,17,18,20}$ $^{46,48,49,50}_{22}Ti_{24,26,27,28}$ $^{54}_{26}Fe_{28}$ $^{59}_{27}Co_{32}$

$^{60,61,64}_{28}Ni_{32,33,36}$ $^{72,74,76}_{32}Ge_{40,42,44}$ $^{75}_{33}As_{42}$ $^{96}_{42}Mo_{54}$ $^{98,100}_{44}Ru_{54,56}$ $^{131}_{54}Xe_{77}$

2021/4/12–13

Meassured values:

$$a_e = \frac{g_e - 2}{2} = 0.00115965218091(26)$$

$$g_e = 2.00231930436182(52)$$

$$a_{\mu} = \frac{g_{\mu} - 2}{2} = \frac{1}{2 \cdot 3 \cdot 11 \cdot 13 - \frac{25}{81}} = 0.00116592057$$

$$g_{\mu} = 2 \cdot (1 + \frac{1}{2 \cdot 3 \cdot 11 \cdot 13 - \frac{25}{81}}) = 2.00233184115$$

$^{10,11}_{5}B_{5,6}$ $^{12,13}_{6}C_{6,7}$ $^{23}_{11}Na_{12}$ $^{24,25,26}_{12}Mg_{12,13,14}$ $^{27}_{13}Al_{14}$ $^{47,48,49,50}_{22}Ti_{25,26,27,28}$ $^{55}_{25}Mn_{30}$ $^{54,56}_{26}Fe_{28,30}$

$^{66}_{30}Zn_{36}$ $^{75}_{33}As_{42}$ $^{78}_{34}Se_{44}$ $^{79,81}_{35}Br_{44,46}$ $^{89}_{39}Y_{50}$ $^{116}_{50}Sn_{66}$ $^{133}_{55}Cs_{78}$ $^{137}_{56}Ba_{81}$ $^{143}_{60}Nd_{83}$ $^{162}_{66}Dy_{96}$

$^{194,195}_{78}Pt_{116,117}$ $^{235}_{92}U^{*}_{143}$ $^{286}_{113}Nh^{ie}_{173}$ $^{363,364}_{143}Ch^{ie}_{220,221}$

$2021/5/26-27$

Meassured values:

$$a_{\mu} = \frac{g_{\mu} - 2}{2} = 0.00116592061(41)$$

$$g_{\mu} = 2.00233184122(82)$$

Calulated values by Standard Model:

$$a_{\mu} = \frac{g_{\mu} - 2}{2} = 0.00116591810(43)$$

$$g_{\mu} = 2.00233183620(86)$$

According to recent reports[10], as for anomalous magnetic moment of muon ((g_{μ}-2)/2), there are 4.2σ error between the average value of latest measurements and the value calculated by Standard Model, and this was stated to imply new physics beyond Standard Model such as new elementary particles. However, according to our theory of the territory of modern physics, Standard Model should be locally perfect, the error for anomalous magnetic moment of muon would be caused by the interactions or collisions among the plates of physics, so there should be no new physics beyond Standard Model.

References:

1. G. Chen, T-M. Chen, T-Y. Chen. viXra e-prints, viXra:2002.0203.
2. G. Chen, T-M. Chen, T-Y. Chen. viXra e-prints, viXra:2008.0020.
3. G. Chen, T-M. Chen, T-Y. Chen. viXra e-prints, viXra:2010.0252.
4. G. Chen, T-M. Chen, T-Y. Chen. viXra e-prints, viXra:2012.0107.
5. G. Chen, T-M. Chen, T-Y. Chen. viXra e-prints, viXra:2101.0187.
6. G. Chen, T-M. Chen, T-Y. Chen. viXra e-prints, viXra:2102.0162.
7. G. Chen and T-M. Chen, Copyright Registration, Chen's Periodic Table of Elements and Natural Group Theory, GuoZuoDengZi-2018-L-00472808.
8. G. Chen, T-M. Chen and T-Y. Chen, Copyright Registration, Chirality and Poetry Model of Atomic Nuclei, GuoZuoDengZi-2018-L-00421847.
9. G. Chen, T-M. Chen and T-Y. Chen, Copyright Registration, Chen's Theory of the Fine-structure Constant, GuoZuoDengZi-2018-L-00547467.
10. B. Abi et al., Phys. Rev. Lett. 126 (2021), 141801.

Acknowledgements

Yichang Huifu Silicon Material Co., Ltd., Guangzhou Huifu Research Institute Co., Ltd. and Yichang Huifu Nanometer Material Co., Ltd. have been giving Dr. Gang Chen a part-time employment since Dec. 2018. Thank these companies for their financial support. Specially thank Dr. Yuelin Wang and other colleagues of these companies for their appreciation, support and help.

Thank Prof. Wenhao Hu, the dean of School of Pharmaceutical Sciences, Sun Yet-Sen University, for providing us an apartment in Shanghai since January of 2021 and hence facilitating the process of writing this paper.

Appendix I: Research History

Section	Page	Date	Location
1	1-3	2018/4-6	Chengdu
		2019/8/28-29	
		2019/12/13	
		2021/2/27	
2	3-4	2021/3/7-8	
3	5	2021/2/27-28	
4	6-7	2021/3/11-16	
5	7	2021/3/11-16	Chengdu
		2021/5/30-31	Shanghai
6	8-9	2021/4/12-13 2021/5/26-27 2021/5/30-31	Chengdu Shanghai Shanghai
Preparing this paper	1-11	2021/2/27-5/31	
Note: Date was recorded according to Beijing Time.			