Le modèle de Hubbard

par

John Hubbard

Mémoire présenté au département de physique
en vue de l'obtention du grade de maître ès sciences (M.Sc.)

FACULTÉ des SCIENCES
UNIVERSITÉ de SHERBROOKE

Sherbrooke, Québec, Canada, DATE DU DEPOT FINAL

Table des matières

1 A placeholder section

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1.1 A placeholder subsection

The general public has decided that this is the most noteworthy equation in all of physics :

$$\boxed{E = mc^2}\,. \tag{1}$$

What a statement. I personally think that the principle of least action (here in its classical form), has to be one of the most impactful statements in all of physics. The action is defined as :

$$\mathcal{S}[\mathbf{q}(t)] \equiv \int_{t_i}^{t_f} \mathcal{L}[\mathbf{q}(t), \dot{\mathbf{q}}(t), t]\, \mathrm{d}t \tag{2}$$

when it is stationnary, we obtain the equations of motion :

$$\frac{\delta \mathcal{S}}{\delta \mathbf{q}(t)} = 0 \iff \boxed{\frac{\delta \mathcal{L}}{\delta \mathbf{q}(t)} - \frac{\mathrm{d}}{\mathrm{d}t}\frac{\delta \mathcal{L}}{\delta \dot{\mathbf{q}}(t)}} \tag{3}$$

slightly pathological alignment on that last derivative... $\mathcal{S}$ and here is mathcal L $\mathcal{L}$ versus the mathscript L $\mathscr{L}$ and here is an operator $\hat{\mathrm{A}}^\dagger$. This is basically the relation that decides whether or not the dagger is right $\hat{\mathrm{U}}^\dagger\hat{\mathrm{U}} = \mathbb{1}$... ok it passes the test for now. Now, this is a native ahh derivative :

$$\frac{\mathrm{d}f}{\mathrm{d}x} = \frac{\mathrm{d}}{\mathrm{d}x} f(x) \tag{4}$$

1.2 Hello what's up ?

1.2.1 Not much

Somebody once told me the world is gonna roll me I ain't the sharpest tool in the shed She was looking kind of dumb with her finger and her thumb In the shape of an "L" on her forehead Well, the years start comin' and they don't stop comin' Fed to the rules and I hit the ground runnin' Didn't make sense not to live for fun Your brain gets smart, but your head gets dumb So much to do, so much to see So, what's wrong with taking the backstreets ? You'll never know if you don't go (go) You'll never shine if you don't glow Hey now, you're an all-star Get your game on, go play Hey now, you're a rock star Get the show on, get paid (And all that glitters is gold) Only shootin' stars break the mold It's a cool place, and they say it gets colder You're bundled up now, wait 'til you get older But the meteor men beg to differ Judging by the hole in the satellite picture The ice we skate is gettin' pretty thin The water's gettin' warm, so you might as well swim My world's on fire, how 'bout yours ? That's the way I like it, and I'll never get bored Hey now, you're an all-star Get your game on, go play Hey now, you're a rock star Get the show on, get paid (All that glitters is gold) Only shootin' stars break the mold Go for the moon (Go, go, go) go for the moon (Go, go, go) go for the moon Go (go), go for the moon Hey now, you're an all-star Get your game on, go play Hey now, you're a rock star Get the show on, get paid (And all that glitters is gold) Only shooting stars Somebody once asked, "Could I spare some change for gas ? I need to get myself away from this place" I said, "Yep, what a concept, I could use a little fuel myself And we could all use a little change" Well, the years start comin' and they don't stop comin' Fed to the rules and I hit the ground runnin' Didn't make sense not to live for fun Your brain gets smart, but your head gets dumb So much to do, so much to see So, what's wrong with taking the backstreets ? You'll never know if you don't go (go !) You'll never shine if you don't glow Hey now, you're an all-star Get your game on, go play Hey now, you're a rock star Get the show on, get paid (And all that glitters is gold) Only shootin' stars break the mold Only shootin' stars break the mold Go for the moon Go for the moon Go for the moon This is how we do it

Théorème 1.1 : LaTeX

If it's typeset in LaTeX, then it's true.

Here is some text in between thus showing that the spacing is correct.

Définition 1.1 : Seagull

A Seagull is a birb that likes to eat fries and sqwak at passersby. They are also known to integrate :

$$\boxed{\int_a^b f(x)\,\mathrm{d}x = F(b) - F(a)} \tag{5}$$

$$\frac{\delta \mathcal{L}}{\delta q} = \frac{\delta \mathcal{L}}{\delta q} \tag{6}$$

$$\frac{\delta^2 \mathscr{L}}{\delta q^2} = \frac{\delta^2 \mathscr{L}}{\delta q^2} \tag{7}$$

$$\frac{\delta \mathcal{L}}{\delta \hat{q}} = \frac{\delta \mathcal{L}}{\delta \hat{q}} \tag{8}$$

And looking at operators

$$\mathrm{Tr}\,\mathrm{A} = \mathrm{Tr}\,(\mathrm{A}) \tag{9}$$

$$qq = \hat{q}\hat{q} \rightarrow \mathrm{e}^{-\alpha x} \tag{10}$$

while

$$\mathrm{Re}\,\{z\} = \frac{z + z^*}{2} \tag{11}$$

$$\mathrm{Im}\,\{z\} = \frac{z - z^*}{2i} \tag{12}$$

Here is an unnamed cbox

Here is the `\ketbra` test :

$$\hat{\rho} = \sum_i p_i \, |\phi\rangle\langle\phi| \tag{13}$$

Here I am testing the difference between different type of differentials

$$\mathrm{d}x$$
$$\mathrm{d}x$$
$$\mathrm{d}\,x$$
$$d\,x$$
$$\mathrm{d}x$$

Bibliographie

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