

I will translate to (A)

https://www.youtube.com/watch?v=RcYIgWX_CII

Lecture by doc. Michal Malinský: on the fate of matter (Fridays 20.5.2022)

10,675 views 24/05/2022 https://www.youtube.com/watch?v=RcYIgWX_CII (My main comment is from **page 7**, picture **no. 48 and more**) Fig.35

Standardní model (2022)

QCD:

$$\mathcal{L} = -\frac{1}{4} F_{\mu\nu}^a F^{\mu\nu a} - g_s \bar{q} \gamma^\mu \lambda^a q G_\mu^a$$

Elektroslabá interakce:

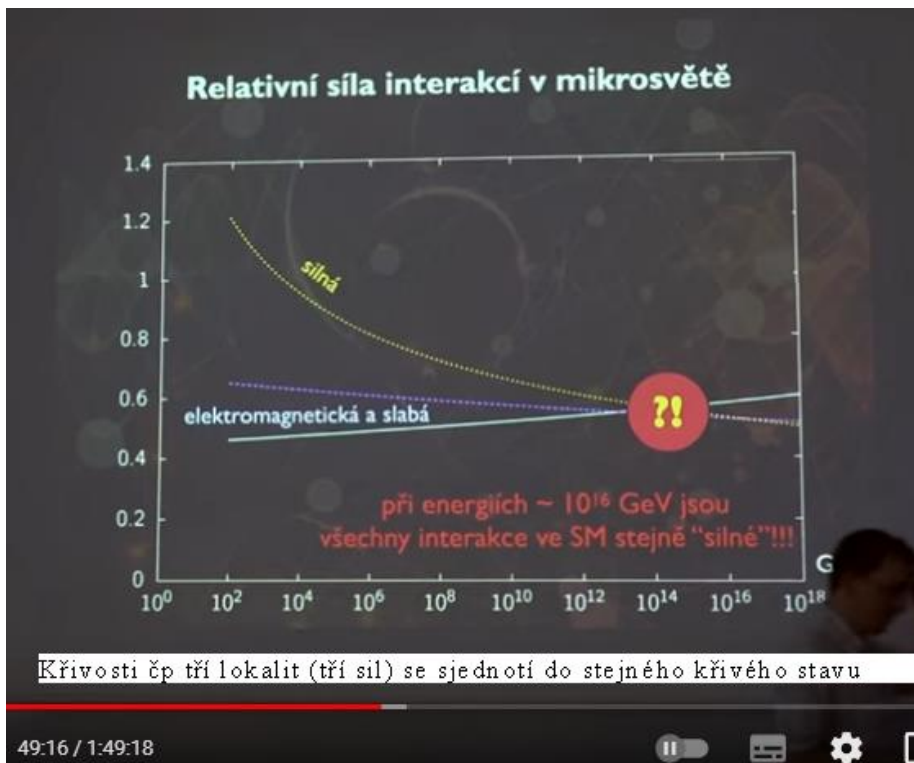
$$\mathcal{L} = -\frac{1}{4} A_{\mu\nu} A^{\mu\nu} + e_A (g, g') \bar{l} \gamma^\mu l A_\mu$$
$$-\frac{1}{4} Z_{\mu\nu} Z^{\mu\nu} + e_Z (g, g') \bar{l} \gamma^\mu l Z_\mu$$
$$-\frac{1}{2} W_{\mu\nu} W^{\mu\nu} + \frac{g}{\sqrt{2}} \bar{l} \gamma^\mu \nu W_\mu^- + \dots$$

The image also contains three Feynman diagrams: 1) A quark (q) and an anti-quark (q-bar) interacting via a gluon (G). 2) A quark (q) and a lepton (l) interacting via a photon (A), Z boson, or W boson. 3) A quark (q) and a lepton (l) interacting via a Higgs boson (h).

39:35 / 1:49:18

Malinský says : the coupling constants "g" **are not constants, but parameters** that depend on the situation, i.e. on the stop-state of the curvature of space-time in some location. Malinský is talking about The "Grand Unification" of the three interactions. **I comment: yes, it is possible and it is also in the spirit of my vision of the curvature of all six 3+3 dimensions of space-time, which "meet" in some "common" curvature under a "common" parameter .;. it seems to me as if this "three-interactional unification" of the already precise parametrized curvature arose from the "chaotic state of curvatures" = foam of dimensions that just preceded....; somehow it revolves around the quark-gluon plasma. Of course, I'm groping, I don't know, but I feel that the chaotic foam of crooked dimensions is gradually "parameterized" into the "universe-chosen" topological-geometrical "frozen" implementation of 3+3 dimensions. Erm, I'm groping and getting smart minds to think about this vision.**

Fig. 39



In essence, "high energies" are precisely a higher distortion of the 3+3 dimensions of space-time. Malinski's vision and mine should intersect at that point ("?!")..., his talk that the interactions are equally "strong" should "match" my vision of the "3+3 dimensional distortion" from a different angle of view .Fig. 41



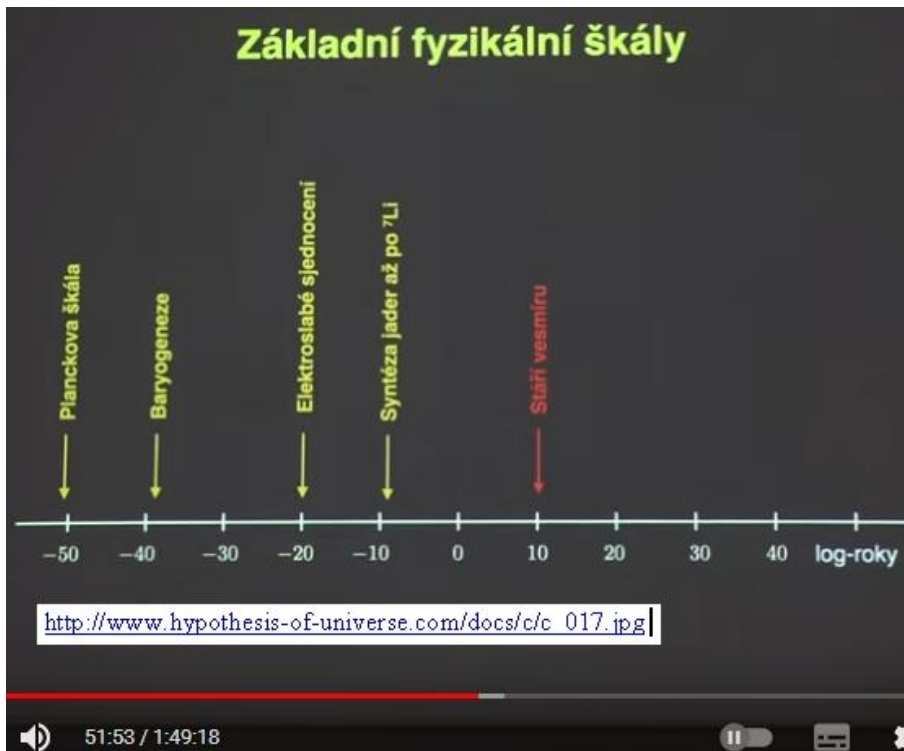
The grand unification will certainly not fundamentally contradict my ideas about the "warping of dimensions" of space-time, which are the essence of the "unification of interactions", since matter is also built from those dimensions. "Boiling vacuum" ~ "foam of dimensions" ~ "quark-gluon plasma", http://www.hypothesis-of-universe.com/docs/c/c_034.jpg ; http://www.hypothesis-of-universe.com/docs/c/c_029.jpg ; http://www.hypothesis-of-universe.com/docs/c/c_036.jpg these are states of high curvature and can be considered mathematically as linear states...also in the spirit of my other vision of alternating symmetries with asymmetries http://www.hypothesis-of-universe.com/docs/h/h_082.jpg ;

Fig. 42



Gravity is no longer linear, it is less curved spacetime than "dimension foam", it is a "parabola". How the "boiling foam" goes from a linear to a non-linear parabola - gravity, mathematicians have to solve that, I can't.

obr. 44b

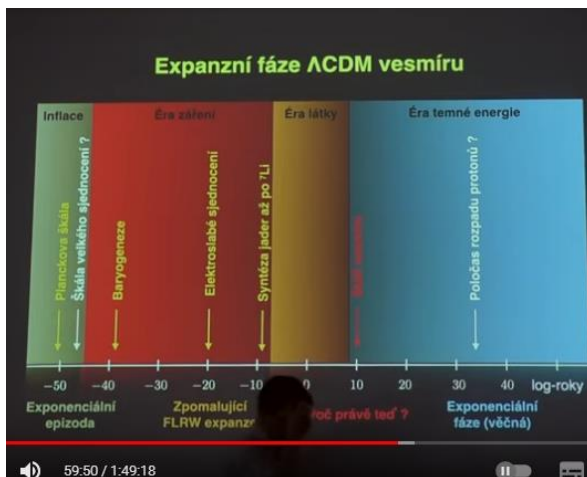


My time and distance scales http://www.hypothesis-of-universe.com/docs/c/c_017.jpg are interesting in that the Earth is almost in the middle of the scale

Fig. 45 →

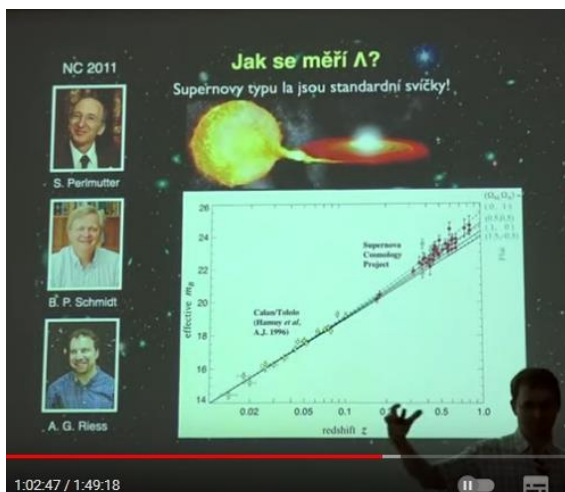


Fig. 48 →



← ← JN ...From the age of 10^{-44} years to 10^9 years there is an era of radiation, an era of matter, the universe also expands, but not exponentially, it expanded "normally" parabolically, i.e. the expansion was decelerating - the Fiedman-Lemaitre-Robertson-Walker curve . An interesting question is why exactly "now", 10^{10} years after the Big Bang, we have reached the phase of expansion change. And how do we actually know that the universe is expanding in this accelerating way? This is a relatively new thing (1:00:10h) for which NC was awarded in 2011 (**Pertmutter + Schmidt + Riess**) and what the three gentlemen did was to **use one very interesting properties of type Ia supernovae**. (*01), that arise in binary systems. One of them, which "pulls" the mass on itself, so at one point when this overflow exceeds the Chandrasekhar limit, which is 1.44 times the mass of the Sun, the gravitational forces will prevail and the mass of the white dwarf will no longer be able to hold that degenerate electron gas in the state of this gas and neutronization will occur very quickly and the energy will be emitted in the form of a supernova. What's remarkable about these supernovae of this type is that they're standard candles, because right there there's something like the Chandrasekhar limit, so they all explode under very similar conditions and...and if you **use** (*02) and you look at supernovae that are far enough away from us...so these guys **studied and studied these supernovae at redshifts**, somewhere between 0.5 -1.0

Fig.50

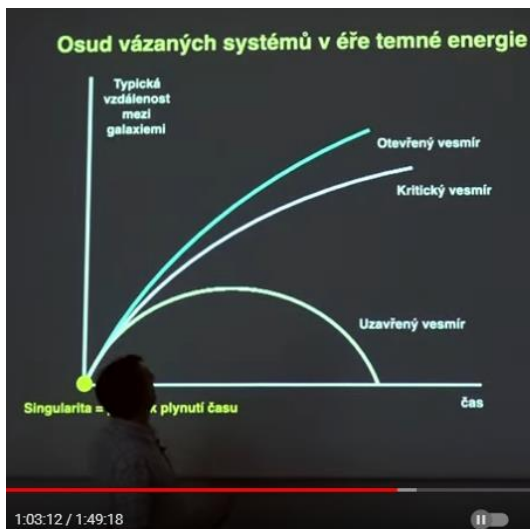


so **they discovered** the following : in the universe, ... actually in the universes, you have no dark energy in them, (*03) , and in which the "lambda" is exactly zero, so the brightness of these the supernova was supposed to follow this curve, (*04), linear, which is a luminosity decay curve not detected, but modeled, decrease in brightness with distance - like a linear relationship (!), because physicists still believe , that the universe expanded linearly in the period from the first inflation to the second "inflation" until the accelerated expansion of cp, i.e. Hubble's $v = H_0 \cdot d = c \cdot z = c \cdot \Delta\lambda/\lambda$. If it is modeled as linear, it may not be true in reality. In reality, even "Guth inflation" may not apply and the expansion may not be Hubble-like, the expansion **may be an unwrapping** of the curvature of space-time http://www.hypothesis-of-universe.com/docs/c/c_081.gif (→ auxiliary animation) which towards the Bang is increasingly crooked → http://www.hypothesis-of-universe.com/docs/c/c_239.jpg but here you see --> i.e. **do you observe observationally ??** a clear statistical indication that the supernovae lie outside this curve as well, **suggested** that the trend is here somewhere in those places that that curve corresponds to the most distant supernovae you see **are a little darker than they should be according to those models well**, that's the point; the model does not match the observational reality, i.e. that the "observed brightness curve" "darkens" (!). Yes, it darkens, but three **gentleman Nobelists** they evaluated **this phenomenon** as if the reason is dark energy (non-zero "lambda"). Again, they "resolved" the discrepancy only with a "proposal" without confirmation. **In other words, a proposal for reality! ; PROPOSAL.**

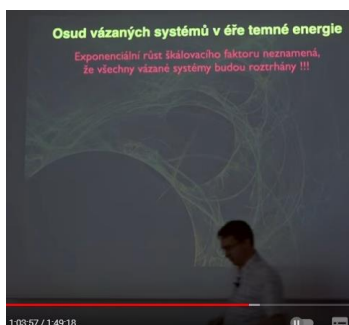
I propose that the reason will not be dark energy, but "curvature-curvature of space-time" → global large-scale space-time towards the Bang is more and more curved until it reaches the plasma state = which is a high curvature of space-time, it is a "boiling vacuum of dimensions", it is it's a foam of dimensions and in this foam, matter elements are born, it starts with quarks + gluons, then leptons, baryons, ..., etc., ..., atoms, molecules, compounds..., etc., up to proteins, DNA. Matter is born by "packaging" the space-time dimensions themselves. So the darkening of the luminosity of supernovae Ia does not have to be due to dark energy, even though dark energy can be, and is, in "my model" anyway: that dark energy is the state of space-time "above the Planck size scale". It is a **boiling vacuum**, i.e. a chaotic warping of dimensions..., therefore the **density** of dark energy is and can be almost constant today| in the "unfolding" 3+3D universe, i.e. already in a much straightened curvature no. Towards the Bang, the ratio of "boiling vacuum" to "unfolded space-time" is different, the ratio (not the amount) is in favor of dark energy. It seems to the **nobelists** that supernovae darken more compared to the model, yes, but this is not due to the "quota of dark energy" (it also changes), but **due to the increasing curvature of global space-time in the direction of the Big Bang**..., the universe – space-time is smaller and smaller, and also crooked and crooked, the density of black energy is higher, and higher ("lambda" non-zero) because it itself is also a "boiling foam" of dimensions. **The reason for the darkening of supernovae Ia is therefore the "warping" of space-time "expanded and unfolded" since the Big Bang**, (still a parabolic curve?), not the dark energy itself, which is also "there", but which is also "its" state of the curved foam dimensions..., i.e. if dark energy exists in the universe (and it does) it is not the reason for the "accelerating" expansion of space-time, nor the darkening of supernovae Ia, no, but the reason for the darkening is that we are observing at an increasingly greater distance (towards the Big Bang) greater curvature of space-time, http://www.hypothesis-of-universe.com/docs/c/c_053.jpg in which that supernova, "more darkened, is located. It is also in accordance with STR. The light from that Ia comes to us "along the arc", along the curved

global dimension. in which there is no cosmological constant. This dimming of supernovae just corresponds to the effect in the accelerating expansion. This is exactly the case when (1:02:41h) you can determine, **when can be determined (?)** the value of that lambda, when the lambda is non-zero. **The interpretation will be wrong here. (I will explain elsewhere).** But this means that our questions about how systems behave in a universe dominated by dark energy are relevant. (?) If you imagine what happens next with this scaling parameter, then in such types of cosmologies the character of the expansion is reversed (**and this is where the speculation begins, not knowledge**) Even in today's space-time, when this expands = better to say **expands**, it may not occur and there is no accelerated expansion "due to black energy"...because a model with a constant density of dark energy can be offered in which space-time only expands parabolically! ! Can Mr. Malinovský? - - Yes, in the past, around the era of matter, there could have been a lot of dark energy in absolute value, i.e. the ratio of TE to ρ higher, but that does not mean the reason for the accelerated expansion "today". Because other explanations can be offered. (before the three Nobel Prize winners had). and suddenly everything starts moving away from everything, exponentially. **No no.** Not only exponentially fast, but exponentially accelerated, but simply because all derivatives of exponentials are again exponentials, (1:03:48h) and thus the question creeps in: can the systems bound to this actually withstand this? The answer is: fortunately, yes.

Mr. Malinovský's further interpretation is no longer on my agenda, I have no need to comment.



Obr. 55



The End.

()*()

Three days ago, I commented on this lecture by Malinský in a different mood, as follows →

Although Malinský **a)** "clarified" the behavior of supernovae Ia, i.e. that they have the same luminosity = the same energy output during the explosion, which although decreases with distance, predictably, linearly - see the "standard curve" in the picture = and so it can be to use it, as Malinský says, as a model of the decrease in luminosity with distance, **but he didn't say** **b)** "how-what" was detected-measured = deviation of the luminosity of all Ia candles from the "standard curve D E S I G N E D " ?? - see the second curve on image, while increasing the distance of the candles from us, the observers. Malinský did not say whether the "model" = Ia curve was only designed or also actually measured and plotted in the "standard curve". And then other Ia candles were measured, in which it was found that "darkening" with distance, i.e. deviation of luminosity from the model with increasing distance. (?) Then Malinský **said without clarification c)** that *it occurred* to the three "nobelists" that **the reason** for the "darkening" of supernovae = deviations from the model, is the "accelerated expansion of the universe" from the age of about 10^{10} years after the Big Bang. Respectively, Malinský literally said: (*11) And this darkening of distant supernovae corresponds precisely to the effect of **accelerating expansion**, says Malinský. **But this is just an idea and it may not be true!**, adds Malinský. **!! (I add: I also have an idea how to explain the deviation of the observed "darkening" of Ia from the theoretical model of Ia.)** Malinský did not say how and with what the Nobelists clarified the idea of the "accelerated" expansion of space-time..., only the statement that the deviation of the "darkening" of the supernova-candle from the model occurs due to the accelerated expansion of the no. By the way, Malinský also did not say **d)** "how" is "lambda" measured?! although he has this question in the title of his slide

The effect of accelerating expansion has a different reason, a different origin, a different explanation: it is precisely the rotation of the systems according to STR when "vé" approaches "cé".

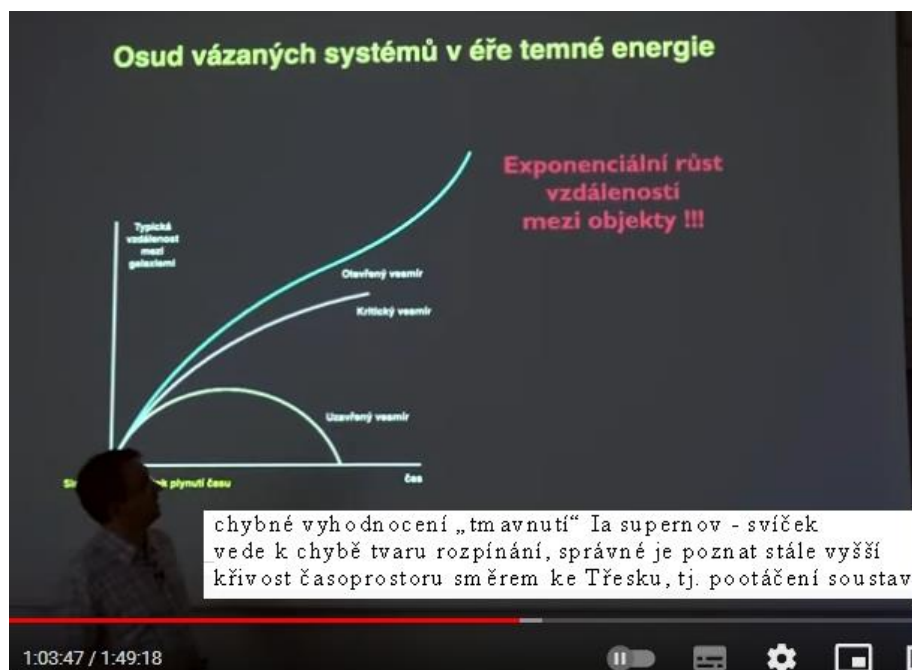
To this day, it is said to still be true, i.e. the statement is valid, not the established reality that "cé" approaches "vé" **Hubble's linear dependence** **$v = H_0 \cdot d$** , which also applies to Ia supernovae. But this linear dependence (Hubble) is not consistent with STR. It can be proven that STR is essentially a "rotation of systems" (a system between an Observer passed to rest and an observed object, whose "vé" is close to "cé".) From this title *rotation* < the reality is the dilation of time and the contraction of lengths. (on the rocket with "vé" "cé" is approaching, time runs at the same pace as on Earth, but the Earthling **OBSERVES !!!**, i.e. receives information from the rotated object, **observes** that dilation and contraction, not that "there" on the rocket is). From the logic of the matter, it will not be surprising that the same thing (i.e. the rotation of the global macro-universe, large-space-time) can also be observed in those Ia-supernovae, candles, that information emanates from them = light, "darkened", which was emitted from the rotated system to our system, and that is why we have the "darkening" of the candle radiation. By looking into the past, today's almost flat space-time changes, it is more curved and therefore, "lambda" increases numerically to states closer to the Bang, states approaching the relict old age, where space-time is already more twisted, it is more crooked than today's...; the older the space-time, the more crooked and therefore

the coordinate systems of such an object are rotated...., therefore Ia light "darkens". The Nobelists **evaluated** the "darkening" of supernovas wrongly as being caused by today's accelerated expansion of today's space-time, and it is accelerated because the universe contains today's dark energy, i.e. "lambda is non-zero".

http://www.hypothesis-of-universe.com/docs/c/c_239.jpg This is said to be the type of observation from which the "lambda" can be determined and thus the accelerated expansion of the "today's state". http://www.hypothesis-of-universe.com/docs/c/c_239.jpg

An incorrect evaluation of the "darkening" of Ia supernovae - candles leads to an erroneous reasoning, i.e. to a parameter of the expansion of space-time such that the expansion accelerates. I think it is correct and necessary to first find out whether this "darkening" has a cause-reason in the ever-increasing curvature of space-time towards the Bang, i.e. the rotation of the systems in accordance with the STR.

obr. 54 →



JN, com 31.05.2022

+ korekce 14.09.2023

Note: I will send my opinion to Mr. Malinský with a request for his expert counter-opinion... and I am 1000% convinced that Mr. Malinský will not give me any. (and I know, I also know the reason "why").

Today is 11/07/2022 and his counter-opinion has not yet arrived.

And today is March 23, 2023, when I use a translator to translate the text into English. Docent Malinovsky's opinion did not come. (Either he does not understand objections or he despises objections...which is significant for Czech scientists).

.....

comment

pro $a_x = \frac{du_x}{dt} = \frac{d^2x}{dt^2}$ bude řešení podle složek času :

$$\begin{array}{lll} a_x = \frac{du_x}{dt_x} = \frac{d^2x}{dt_x \cdot dt_x}; & a_x = \frac{du_x}{dt_y} = \frac{d^2x}{dt_y \cdot dt_x}; & a_x = \frac{du_x}{dt} = \frac{d^2x}{dt_z \cdot dt_x} \\ a_x = \frac{du_x}{dt_x} = \frac{d^2x}{dt_x \cdot dt_y}; & a_x = \frac{du_x}{dt_y} = \frac{d^2x}{dt_y \cdot dt_y}; & a_x = \frac{du_x}{dt} = \frac{d^2x}{dt_z \cdot dt_y} \\ a_x = \frac{du_x}{dt_x} = \frac{d^2x}{dt_x \cdot dt_z}; & a_x = \frac{du_x}{dt_y} = \frac{d^2x}{dt_y \cdot dt_z}; & a_x = \frac{du_x}{dt} = \frac{d^2x}{dt_z \cdot dt_z} \end{array}$$

V matici vypadnou 3 shodné případy ... a možná vypadnou další, když (?)

pro $a_x = \frac{du_x}{dt} = \frac{d^2x}{dt^2}$ bude řešení podle složek času :

$$\begin{array}{lll} a_x = \frac{du_x}{dt_x} = \frac{d^2x}{dt_x \cdot dt_x}; & ~~a_x = \frac{du_x}{dt_y} = \frac{d^2x}{dt_y \cdot dt_x};~~ & a_x = \frac{du_x}{dt} = \frac{d^2x}{dt_z \cdot dt_x} \\ a_x = \frac{du_x}{dt_x} = \frac{d^2x}{dt_x \cdot dt_y}; & a_x = \frac{du_x}{dt_y} = \frac{d^2x}{dt_y \cdot dt_y}; & ~~a_x = \frac{du_x}{dt} = \frac{d^2x}{dt_z \cdot dt_y}~~ \\ ~~a_x = \frac{du_x}{dt_x} = \frac{d^2x}{dt_x \cdot dt_z};~~ & a_x = \frac{du_x}{dt_y} = \frac{d^2x}{dt_y \cdot dt_z}; & a_x = \frac{du_x}{dt} = \frac{d^2x}{dt_z \cdot dt_z} \end{array}$$

V matici vypadnou 3 shodné případy ... a možná vypadnou další, když (?)

Řekl jste mi, pane, že derivace rychlosti podle složek času je **nesmysl** ... zde jsou :

$$\mathbf{u} = \frac{d\mathbf{r}}{dt} ; \dots\dots\dots \text{Rychlost pro stanovení zrychlení a transformací zrychlení}$$

$$a_x = \frac{du_x}{dt} ; a_y = \frac{du_y}{dt} ; a_z = \frac{du_z}{dt} \text{ Derivace rychlosti podle „univerzálního“ tempa „t“, které se}$$

nachází ve všech třech dimenzích času jako jednotné tempo (stejný ukrojený interval do tří časových os) odvíjení času do tří složek prostoru x,y,z.

Ovšem derivace rychlosti podle „složek veličiny čas“ ($t_1=t_x ; t_2=t_y ; t_3=t_z$) s různými tempy odvíjení času „t“ v jeho časových složkách ($t_x ; t_y ; t_z$)

pro $a_x = \frac{du_x}{dt} = \frac{d^2x}{dt^2}$ bude řešení podle složek času :

$$a_x = \frac{du_x}{dt_x} = \frac{d^2x}{dt_x \cdot dt_x} ; \quad a_x = \frac{du_x}{dt_y} = \frac{d^2x}{dt_y \cdot dt_x} ; \quad a_x = \frac{du_x}{dt} = \frac{d^2x}{dt_z \cdot dt_x}$$

$$a_x = \frac{du_x}{dt_x} = \frac{d^2x}{dt_x \cdot dt_y} ; \quad a_x = \frac{du_x}{dt_y} = \frac{d^2x}{dt_y \cdot dt_y} ; \quad a_x = \frac{du_x}{dt} = \frac{d^2x}{dt_z \cdot dt_y}$$

$$a_x = \frac{du_x}{dt_x} = \frac{d^2x}{dt_x \cdot dt_z} ; \quad a_x = \frac{du_x}{dt_y} = \frac{d^2x}{dt_y \cdot dt_z} ; \quad a_x = \frac{du_x}{dt} = \frac{d^2x}{dt_z \cdot dt_z}$$

V matici vypadnou 3 shodné případy ... a možná vypadnou další, když (?)

pro $a_y = \frac{du_y}{dt} = \frac{d^2y}{dt^2}$ bude :obdobně

a pro $a_z = \frac{du_z}{dt} = \frac{d^2z}{dt^2}$ bude :také obdobně

03.10.2005

Pohybová rovnice je rovnicí **vektorovou** , tj. je to formální matematický vztah, který se při konkrétním výpočtu musí rozepsat do vektorových souřadnic:

$$F_x = m \cdot a_x = m \cdot \frac{d^2x}{dt^2}$$

$$F_y = m \cdot a_y = m \cdot \frac{d^2y}{dt^2}$$

$$F_z = m \cdot a_z = m \cdot \frac{d^2z}{dt^2}$$

Pohybová rovnice je rovnicí **vektorovou** díky tomu, že veličina Délka je (minimálně) třídimenzionální.

Namísto označení každé dimenze x, y, z, užíjji označení x_1, x_2, x_3

Pokud by veličina Čas byla také (minimálně) třídimenzionální, pak si její dimenze označím t_1, t_2, t_3 .

a pohybové rovnice nutno rozepsat do vektorové matice souřadnic :

$$\begin{matrix} m \frac{d^2x_1}{dt_1^2} ; & m \frac{d^2x_1}{dt_2^2} ; & m \frac{d^2x_1}{dt_3^2} \\ m \frac{d^2x_2}{dt_3^2} ; & m \frac{d^2x_2}{dt_1^2} ; & m \frac{d^2x_2}{dt_2^2} \\ m \frac{d^2x_3}{dt_2^2} ; & m \frac{d^2x_3}{dt_3^2} ; & m \frac{d^2x_3}{dt_1^2} \end{matrix}$$

Matematicky naprosto vpořádku... nyní potřeba zkoumat zda také fyzikálně. Dnes platí že $t_1 = t_2 = t_3 = t$

Matice rychlosti a zavedení konvence pro poměry x ku t

Matice rychlostí	<u>s y m b o l i c k y</u>		
$c > w > u$	0/0	0/1	0/ ∞
$c^* > c > w$	1/0	1/1	1/ ∞
$c^{**} > c^* > c$	$\infty/0$	$\infty/1$	∞/∞

symboly nula a nekonečno a jednička znamenají, že veličiny příslušné se k takovým hodnotám limitně blíží

Poloha (souradnice) bodu $x = [x_1, x_2, x_3]$

čas $t = [t_1, t_2, t_3]$

Poloha je funkci casu $x(t) = [x_1(t), x_2(t), x_3(t)] = [x_1([t_1, t_2, t_3]), x_2([t_1, t_2, t_3]), x_3([t_1, t_2, t_3])]$

Rychlost

$$v = \frac{dx}{dt} = \begin{pmatrix} \frac{\partial x_1}{\partial t_1} & \frac{\partial x_1}{\partial t_2} & \frac{\partial x_1}{\partial t_3} \\ \frac{\partial x_2}{\partial t_1} & \frac{\partial x_2}{\partial t_2} & \frac{\partial x_2}{\partial t_3} \\ \frac{\partial x_3}{\partial t_1} & \frac{\partial x_3}{\partial t_2} & \frac{\partial x_3}{\partial t_3} \end{pmatrix}$$

Kinetická energie $E = \frac{1}{2} mv^2$

$$v^2 = v \cdot v =$$

$$\begin{pmatrix} \left(\frac{\partial x_1}{\partial t_1} \cdot \frac{\partial x_1}{\partial t_1} + \frac{\partial x_1}{\partial t_2} \cdot \frac{\partial x_2}{\partial t_1} + \frac{\partial x_1}{\partial t_3} \cdot \frac{\partial x_3}{\partial t_1} \right) & \left(\frac{\partial x_1}{\partial t_1} \cdot \frac{\partial x_1}{\partial t_2} + \frac{\partial x_1}{\partial t_2} \cdot \frac{\partial x_2}{\partial t_2} + \frac{\partial x_1}{\partial t_3} \cdot \frac{\partial x_3}{\partial t_2} \right) & \left(\frac{\partial x_1}{\partial t_1} \cdot \frac{\partial x_1}{\partial t_3} + \frac{\partial x_1}{\partial t_2} \cdot \frac{\partial x_2}{\partial t_3} + \frac{\partial x_1}{\partial t_3} \cdot \frac{\partial x_3}{\partial t_3} \right) \\ \left(\frac{\partial x_2}{\partial t_1} \cdot \frac{\partial x_2}{\partial t_1} + \frac{\partial x_2}{\partial t_2} \cdot \frac{\partial x_2}{\partial t_1} + \frac{\partial x_2}{\partial t_3} \cdot \frac{\partial x_3}{\partial t_1} \right) & \left(\frac{\partial x_2}{\partial t_1} \cdot \frac{\partial x_2}{\partial t_2} + \frac{\partial x_2}{\partial t_2} \cdot \frac{\partial x_2}{\partial t_2} + \frac{\partial x_2}{\partial t_3} \cdot \frac{\partial x_3}{\partial t_2} \right) & \left(\frac{\partial x_2}{\partial t_1} \cdot \frac{\partial x_2}{\partial t_3} + \frac{\partial x_2}{\partial t_2} \cdot \frac{\partial x_2}{\partial t_3} + \frac{\partial x_2}{\partial t_3} \cdot \frac{\partial x_3}{\partial t_3} \right) \\ \left(\frac{\partial x_3}{\partial t_1} \cdot \frac{\partial x_3}{\partial t_1} + \frac{\partial x_3}{\partial t_2} \cdot \frac{\partial x_3}{\partial t_1} + \frac{\partial x_3}{\partial t_3} \cdot \frac{\partial x_3}{\partial t_1} \right) & \left(\frac{\partial x_3}{\partial t_1} \cdot \frac{\partial x_3}{\partial t_2} + \frac{\partial x_3}{\partial t_2} \cdot \frac{\partial x_3}{\partial t_2} + \frac{\partial x_3}{\partial t_3} \cdot \frac{\partial x_3}{\partial t_2} \right) & \left(\frac{\partial x_3}{\partial t_1} \cdot \frac{\partial x_3}{\partial t_3} + \frac{\partial x_3}{\partial t_2} \cdot \frac{\partial x_3}{\partial t_3} + \frac{\partial x_3}{\partial t_3} \cdot \frac{\partial x_3}{\partial t_3} \right) \end{pmatrix}$$

V 3+1 prostorocasu

$$v = \begin{pmatrix} \frac{\partial x_1}{\partial t} & \frac{\partial x_2}{\partial t} & \frac{\partial x_3}{\partial t} \end{pmatrix}$$

$$v^2 = v \cdot v = \left(\frac{\partial x_1}{\partial t} \cdot \frac{\partial x_1}{\partial t} + \frac{\partial x_2}{\partial t} \cdot \frac{\partial x_2}{\partial t} + \frac{\partial x_3}{\partial t} \cdot \frac{\partial x_3}{\partial t} \right) = \left(\frac{\partial x_1}{\partial t} \right)^2 + \left(\frac{\partial x_2}{\partial t} \right)^2 + \left(\frac{\partial x_3}{\partial t} \right)^2$$

$$v = \frac{dx}{dt} = \begin{pmatrix} \frac{\partial x_1}{\partial t_1} & \frac{\partial x_1}{\partial t_2} & \frac{\partial x_1}{\partial t_3} \\ \frac{\partial x_2}{\partial t_1} & \frac{\partial x_2}{\partial t_2} & \frac{\partial x_2}{\partial t_3} \\ \frac{\partial x_3}{\partial t_1} & \frac{\partial x_3}{\partial t_2} & \frac{\partial x_3}{\partial t_3} \end{pmatrix}$$

$$\begin{matrix} m \frac{d^2 x_1}{d t_1^2} & ; & m \frac{d^2 x_1}{d t_2^2} & ; & m \frac{d^2 x_1}{d t_3^2} \\ m \frac{d^2 x_2}{d t_3^2} & ; & m \frac{d^2 x_2}{d t_1^2} & ; & m \frac{d^2 x_2}{d t_2^2} \\ m \frac{d^2 x_3}{d t_2^2} & ; & m \frac{d^2 x_3}{d t_3^2} & ; & m \frac{d^2 x_3}{d t_1^2} \end{matrix}$$

<https://www.youtube.com/watch?v=TAhbFRMURtg>

Theoretical Physicist Brian Greene Explains Time in 5 Levels of Difficulty | WIRED



[WIRED](#)

10,6 mil. odběratelů

1 394 179 zhlédnutí 19. 4. 2023 [5 Levels S1 E2](#)

Time: the most familiar, and most mysterious quality of the physical universe. Theoretical physicist Brian Greene, PhD, has been challenged to explain the nature of time to 5 different people; a child, a teen, a college student, a grad student, and an expert.

1 394 179 zhlédnutí 19. 4. 2023 5 úrovní S1 E2

Čas: nejznámější a nejzáhadnější kvalita fyzického vesmíru. Teoretický fyzik Brian Greene, PhD, byl vyzván, aby vysvětlil povahu času **5 různým lidem**; dítě, dospívající, vysokoškolák, postgraduální student a odborník.

.....
 Note: I will send my opinion to Mr. Malinský with a request for his expert counter-opinion... and I am 1000% convinced that Mr. Malinský will not give me any. (and I know, I also know the reason "why").

Today is 11/07/2022 and his counter-opinion has not yet arrived.

And today is March 23, 2023, when I use a translator to translate the text into English. Docent Malinský's opinion did not come. (Either he does not understand objections or he despises objections...which is significant for Czech scientists).

JN, 23.09.2023

