

THEORETICAL AND CONDENSED MATTER PHYSICS

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Quantum physics as dynamic space-time differential calculus

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For the first time, the Unified Quantum Metric system was analytically developed without any artifacts, such as m, s, kg and without measurements at all. The energy diagrams of Feynman were replaced by calculations of harmonic space-time differentials. The main constants of quantum physics are, in fact, dynamic gradients of normal, half-normal, log-normal and truncated normal distribution of inverse radius of pulsing spiral. The Quantum Physics is the logarithmically compressed two-dimensional image of three-dimensional motion of wave fronts. One matrix equation $[Gi]=2*PI*[Ri]*(1+[Ai])$ where Ai, Ri, Gi are eccentricity, radius, density correspondingly, completely describe the 3D motion of wave fronts. Radii and eccentricities are bonded by the argument of information entropy $Sqrt(2*PI*E)$ of the function of normal distribution $Ri = 1+2/100*(E + Ai*(1+Sqrt(2*PI*E/100)))$. Lower limit of the nuclear rotational radius of pulsing spiral $R = Integer\{10^8*(C/10^7)^{(1/64)}/10^8 = 1.05456978$ corresponds to upper limit of the harmonic rotational speed. $C = (R+4*PI*C/10^18)^{64}*10^7 = 299792457.86759$ (Maxwell unit) and $K=E+AS+BS=2.7315999984590452$ (upper limit of background temperature, Kelvin unit) link electrodynamics and thermodynamics. The number $AS = 0.00729 = 1/100/(1.11111111...)^3=1/100/Sum\{[137+(137-100)*N]/10^{(3*N+2)}\}$ is the Schrodinger quantum binary inverse integral number. The number $BS=Sum\{602214183/10^{(3*N+11)}\}=0.0060281699999... = 0.00602817$ (Avogadro quantum decimal integral number) connects binary and decimal calculation systems. The thirteen digital sequences are sufficient for estimating all fundamental quantum constants with practically unlimited accuracy.

ECCENTRICITY		ERRAC RADIUS		PLANCK PERMETER		BOLTZMANN PHASE		NEWTON DENSITY		AVOGADRO ENTROPY	
A4=0.007318721139002	1.0545725104198778	6.6260746822362681	1.380658404140000	6.6745704910750269	0.0060223410025819						
AH=0.00731872894283609	1.0545728282012318	6.626074464147343	1.3806513074730000	6.6745689643378527	0.0060223410033903						
AL=0.00731131305896009	1.0545721485998002	6.6260734872298854	1.3806522262230000	6.6745506162383351	0.0060223410732354						
AF=0.0073071381524862	1.0545721761536017	6.6260734023081129	1.3806510428190000	6.6744990127791825	0.0060223411450152						
AI=0.0073092730728927	1.0545719381572565	6.626073068738006	1.3806528057020000	6.6744584873480225	0.0060223412397951						
AR=0.0072978528205056	1.0545718996147182	6.62607308695234673	1.3806507429730000	6.6744238427142733	0.0060223412628504						
AS=0.00732708599902	1.0545717082308448	6.6260698398234579	1.3806506056430000	6.6743918194962937	0.0060223413188129						
AW=0.0072900000000000	1.0545716917921240	6.62606993592370495	1.38065051777840000	6.6743734048488876	0.0060223413914659						
AC=0.0072234923949475	1.0545697837679381	6.6260573707622728	1.3806484502840000	6.6739140432082915	0.0060223421844283						
AD=0.0072234913033101	1.0545697308707944	6.62605737030461659	1.3806484501880000	6.6739140233977372	0.0060223421844460						
AA=0.0072234927001997	1.054569783689549	6.6260573701443325	1.3806484501770000	6.6739140233286678	0.0060223421844702						
AK=0.0072234924137441	1.0545697316606581	6.6260573706934888	1.3806484501680000	6.6739140199795554	0.0060223421844737						
AX=0.007324176352109	1.0545642348531588	6.6260225649136943	1.3806424370550000	6.6725781076598224	0.0060223445289294						

The following equations functionally links binary, decimal and natural quantum calculation systems (bit-dit-nat): $A1=1/137$, $A0=(PI*E/100)^2$, $A4=A0+4*(A1-A0)$, $AH=1/(4^2*PI*E)$, $AL=(1+59*Ln(10))$, $AF=1000/Inteer\{1000*Sqrt(137^2+PI^2)\}$, $RC=R+4*PI*C/10^18$, $RE=R+1/E/10^8$, $RA=R+1/(E+AS)/10^8$, $RK=R+1/K/10^8$, $NB=602214183/(1+4*PI/10^8)/10^8=6.022141073235$ (reference number of differential entropy, lower limit of harmonic Avogadro unit), $[Ni]=(Sqrt(8*PI*E/(8*PI*E+137^2)))/(1+2*[Ai]/1000)-1/2/10^7)/10$ (Avogadro energy entropy matrix), $[MMi]=12-[Ai]/10$ (molar mass entropy matrix), $[KBI]=Cos(12-[Ai]/10)-Sin(12-[Ai]/10)$ (Boltzmann phase entropy matrix), $[Vi]=[Ri]^64*10^7$ (translation speed entropy matrix), $AX=5/Root\{X*E^X/(E^X-1)\}=5=0.0070261763632109$ (lower limit of relative inverse eccentricity, Wien reference unit).

Biography

Eugene Machusky is currently Head of the Dept. of Technical Information Protection Systems, Scientific Director of Special Design Bureau "Storm" in National Technical University of Ukraine "Kyiv Polytechnic Institute" (KPI), Kyiv, Ukraine. He received his MEng (1974), PhD (1979), DSc (1989) from NTUU "KPI". He has been a Research Visitor at the University of North Wales (1983-1984, Bangor, UK), Visiting Professor at Harbin Technological University (2015-2018), China. He has also been an Author and Editor of Radio Engineering Encyclopaedia (Kyiv 1999; Moscow 2002, 2009, 2016), Articles in Great Ukrainian Encyclopedia (2016-2017). His scientific fields of interest includes microwave electronics, underwater acoustics, information security, mathematical linguistics.

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