The Set of Physical Constants of Nature

Auxiliary Constants

A physical value we will call fundamental constant if we can get the same value from different independent experiments. The constant of most accuracy should be used as an appropriate input constant. We start with a minimum set of **Codata 1986** auxiliary values.

MECHANICS
1) The ***Planck constant*** h=**6.6260755**(40)e-34Js
2) The ***velocity of light*** in vacuum c=**2.99792458**e8m/s
3) ***Rydberg Contant*** Ry=**10973731.534**(13)/m instead of the gravitational constant G

ELECTRICS
4) The ***permeability*** $\mu_0=4\pi$e-7Vs/Am=4pi*μ_{01}

THERMODYNAMICS
5) k=**1.380658**e-23J/K and N_A=**6.0221367**e+23/mol)
(6.022 141 99)http://gemini.tntech.edu/~tfurtsch/scihist/avogadro.htm

and two additional input parameters:
6) Fine structure contstant from experiment: 1/α=**137.035989**
7) The **Quantum Number N**=close to1e22 : from Geilhaupt's Theory see Unified Force Equation results

Now we are able to write the formula for the gravitational constant G depending on the Rydberg constant and vice versa.
("Gravitational Constant") G=(1/4)***24/N**^{2}*(α/Ry)^2*α^3(c/2)(c/π)(c)/h=**6.6726023**93e-11...

The accuracy of the Codata 1986 G-value=6.67259*10^-11... and the codata1999 G-value=6.673*10^-11... I like to throw into relief right here.

accuracy test
codata1986-values

$$1=32*\pi^2*\mu_0/(c*h*\alpha^5)*(\mu_B*Ry)^2=\mathbf{1.00000000}067$$

A lot of correct digits of physical values alone is not enough to present physics excluding numerology!
(the need is a principle theory at first - I did it.)
(I tried to extend GR by an additional principle the II Law)

So here Geilhaupt's Extended Engineering Set

If you prefer take the following input quantities:

(**h**) from Planck's QM and (**c**) from Einstein's SR and $c^{-2}=\mu*\varepsilon$ from Maxwell's ED and (**κ**) from Einstein's GR and α the input number from QED. Use also my internal electron mass-parameter **N** additionally.

So then ***THREE*** physical constants (h,c,G) (G instead of kappa) plus ***TWO*** additional physical input numbers(N,alpha) are able to *predict*. The **Compton wavelength**, the **Bohr radius**, the **classical radius**, the **Spin**, the **elementary charge** the **Bohr magneton**, the **Rydberg constant**. the **Hubble constant** (so from **3**+**2** we get 8 of *codata's fundamental constants* when using my theory). With additional k=Botzmann constant and NA=Avogadro's number we can explain else the **Backgound radiation**, the **Einstein radiation**, the **Hawking radiation**, the **Wien displacement constant**. And at least can give a new definition of **1kg**

http://www.mcelwee.net/German/html/table_of_physical_constants.html.........all codata 1986 values
http://www.physlink.com/Reference/PhysicalConstants.cfm...........................all codata 1998 values

Name	Symbol	Formula	Value from Formula	Codata 1986
fine structure constant	α	$(1/Nw)^{1/3}$	7.297353073187389D-03	**7.29735308D-03**
(from Wales)	$1/\alpha$	$(\mathbf{Nw})^{1/3}$	**137.0359896212632**	**137.035989**
textbook	α^2	2*Ry*h/c/me	.	(7.29735308D-03)^2
gravitational const	G	$(1/4)*\mathbf{24/N}^2*(\alpha/Ry)^2*\alpha^3(c/2)(c/\pi)(c)/h$	**6.6726023**930016e-11	**6.672**59D-11
$[m^3/kg/s^2]$	.	$(4\pi)*\mathbf{24/N}^2*(\mu_B/h)^2*(\mu_0*c^2)$	6.672602384e-11	.
.	.	$(Do^3/Mo/To^2)$	$\nu o^2/\rho o$	.
$[cm^4/g/s^3]$	G*c	$\rho^{-1}*c*\nu^2$	2*1000*1.0001979	2000.3958699
(Hans Joswig)	2/c	(2*xo)*G	.	.
$[m^2/s^4]$ (wave propagation)	G*p	$G*(\rho*c*v)$	$c*v*\nu^2$	.
$[m^2/s^4]$ (Bernoulli)	a^2	$G*(1/2\rho*v^2)$	$1/2(v*\nu)^2$	.
surface grav$[m^2/s/kg]$	G/c	$(Do^2/To/Mo)$	2.2257406e-19	.
[m/kg]	G/c^2	(Do/Mo)	7.4242714e-28	.
[s/kg]	G/c^3	(To/Mo)	2.4764703e-36	.
$[s^2/m/kg]$	G/c^4	1/(ao*Mo)	.	.
GR-kappa[m/kg]	κ	$8\pi*G/c^2$	1.8659229257642e-26	.
(my interpretation)	.	$4*G*(2/c)*(\pi/c)$	.	.
Basic force[N]	c^4/G	Fo	**1.2105634**741685e+44	.
(John Wilcoxen)	c^4/G	Mass-universe*c^2*Hubble	.	.
.	c^4/G	Mass-universe*acceleration_univ	.	.
hanson/wilcoxen/geilhaupt	c^2/G	(n*N_A*Mo)*H	.	.
$[Js*kg/m^3]$	c^5/G^2	$h*\rho$(planck)	.	.
Hubble	$(cH)^2$	$(4\pi/3)*G*\rho$(cosmos)	.	.
.	.	.	.	.
surface0$[m^2]$	Do^2	h*c/Fo	1.6409279684637e-69	.
pressure0$[N/m^2]$	po	Fo/(surface0)	7.3773102624478e+112	.
pressure0$[J/m^3]$	po	Eo/(Volume0)	7.3773102624478e+112	.
$[Jm^3]$	$(G/c^2)*h^2$	$(Eo*Do^3)$	3.2596172e-94	.

..[kg*s/m]	$(h/Gc)^{1/2}$	.	1.8199950849e-16	.
dyn. viscosity [kg/s/m=Ns/m^2]	η	(h/Do^3)	9.96832305e+69	.
(surface-sphere)?	.	$4\pi*Ro^2$	.	.
(surface-torus)?	.	$4\pi^2*r1*r2$	.	.
(surface-cube)?	.	$6*Lo^2$	.	.
(surface-frustum)?	.	$\pi*(R1+R2)*\{(R1-R2)^2+h^2\}^{1/2}$	.	.
re-defined-**5inputs**		**Do, To, Mo, eo, Θo**	values	.
1) Planck-Distance[m]	**Do**	**$sqr(h*G/c^3)$**	+4.0508369116316e-35	.
2) Planck-Time[s]	**To**	**$sqr(h*G/c^5)$**	+1.3512137483222e-43	.
3) Planck-Mass[kg]	**Mo**	**sqr(h*c/G)**	+5.4562080024777e-8	.
[g]	M_{01}	sqr(h*c/G)	+5.4562080024777e-5	.
momentum[g*cm/s]	(M_0*D_0/T_0)	$sqr(h*c^3/G)$	**163573.00**	quantized?
Planck-energy[J]	Eo	$Mo*c^2$	+4.9037951984921e+9	.
.	.	po*Vo	.	.
(erg/s)*(cm^3/s)	Eo/To*Vo/To	$h*c^3$	**178532.99**	quantized?
Planck-density[kg/m^3]	ρo	Mo/Do^3	+8.2083646660859e+95	.
Planck-accel[m/s^2]	ao	c/To	+2.21869011008e+51	.
[kg/m^3*s^2/m*s]	xo	ρo*To/ao	+49.990105142	.
[m/s]	c	1/(xo*G)	299792458.00	.
(charge01[C])	e_{01}	$sqr(h/\mu_{01}/c)$	$eo*(4\pi)^{1/2}$	.
.	.	$sqr(h*\varepsilon_{01}*c)$	-4.7012986263350e-18	.
[(g/s)*(cm/s)*cm^2]$^{1/2}$	q_{01}	sqr(h*c)	-1.4094138714510e-8	.
[cm^3/g/s^2]	G_{01}	$(-q_{01}/M_{01})^2$	+6.672602388549e-8	.
4) Planck-Charge[C]	**eo**	**$sqr(h/\mu_0/c)$**	-1.3262118570628e-18	.
.	.	$sqr(h*\varepsilon_0*c)$	.	.
electric flux[As]	.	$sqr(Fo*surface0*\varepsilon_0)$	.	.
elec. flux density[As/m^2]	σo	$sqr(Fo*\varepsilon_0/surface0)$	.	.
Planck-Current[A]	Io	eo/To	.	.
electric potential[J/As]	Uo	Eo/eo	.	.
electric resistance[V/A]	R	Uo/Io	.	.
electric conductance[V/A]	1/R	Io/Uo	.	.
elec. capacitance[As/V]	Co	eo/Uo	.	.
magnetic flux[Vs]	ϕo	$1/2*\mu_o*eo*c$	.	.
mag flux density[Vs/m^2]	Bo	$1/2*\mu_o*eo*c/surface0$	.	.

inductance[Vs/A]	Lo	Uo*To/Io	.	.
5) Pl.-Temperature[K]	**Θo**	**sqr(h*c^5/G/k^2)**	+3.5517728e+32	.
Heat [J]	Qo	k*Θo	+4.9037951984921e+9	.
.	.	po*Vo	.	.
Planck-entropy[J/K]	So	-Qo/Θo	-1.380658e-23	.
*Boltzmann-S=k*ln(W)*	ln(Wo)	So/k	-1	.
(probability)	Wo	exp(-1)	0.36787944	.
virtual action	Eo*To	ln(Wo)*(So*Θo)*To	h	.
.	.	.	.	.
internal action[Js]	Ao	E*T	h=const	.
second law	|ΔQ|	>	0	.
action[Js](heat outward)	A	|E+ΔQ|*T	<h	.
action[Js](heat inward)	A	|E+ΔQ|*T	>h	.
action[Js](completed)	A1	E1*T1	=h	.
photon entropy	S	Q/Θ=k*ln(Wa)	=0	.
.	.	.	.	.
Basic Action[Js]	h	eo^2*(c*μ_0)	.	.
Basic Action[Js]	h	Mo*(c^2*To)	Fo*Do*To	**6.62607**55D-34
Basic Action[Js]	h	Θo*(k*To)	.	.
from my theory	.	theoretical formula	numerical calculation.	.
Charge electron[As]	e	eo* [2α]$^{1/2}$	**-1.6021773**360320e-19	**-1.60217733**D-19
.	.	e_{01}* [α/2π]$^{1/2}$	.	.
Mass electron[kg]	m	Mo*[2α/4π***24/N**^{2}]$^{1/2}$	**9.1093897**641333e-31	**9.10938**970D-31
.	alpha0	3/4*(1-ln3)^2	1/137.112	.
OUTPUT (5+2inputs)	.	**a lot you will find in textbooks**	see and compare with	codata86
mass-energy[J]	m*c^2	p*V_G	8.1871112256e-14	.
.	.	k*Θ_G	.	.
.	.	h/t_G	.	.
.	.	Ee	.	.
internal action[Js]	h[1]	m*c^2*t_G	eo^2*c*μ_0	**6.62607**55D-34
internal action time[s]	**t_G**	h/(m*c^2)	8.0933009318381e-21	.
? Action[Js]	h[2α]	2*m*c^2*te	e^2*c*μ_0	.
.	.	derivative formula	.	.
De Broglie[Js]	h[1]	m*v*λ_B	.	.

Compton[Js]	h[1]	$m*c*\lambda_C$	.	.
Compton-wavelength[m]	λ_C	h/m/c	**2.4263105**813081e-12	**2.426310**215D-12
Wales Action[Js]	w	$m*c^2*te$	$1/2*e^2*c*\mu_0$	.
Wales action time[s]	te	$w/(m*c^2)$	5.9059674427179e-23	.
huge **number N**	f_G/f_C	$(4\pi*\varepsilon_0)*G*(m/e)^2$	**24/N**^{2}	**2.399995**53D-43
.	.	E_G/Ee	**24/N**^{2}	**2.399995**53D-43
(ratio's accuracy)	.	.	.	1.00000186
number of particles	Ee/Eu	$(m*c^2)/(Mu*c^2)$	$(\mathbf{24/N}^2)^2$	.
mass universe[kg]	Mu	$m*(\mathbf{N}^2/\mathbf{24})^2$	1.58149127849e+55	.
entopy(mass-bh)	S	$-k*(8\pi^2*G*mass^2/h/c)$	k*ln(W)	.
(black hole electron)	We	$(exp(\mathbf{-24/N}^2)$	1	.
(black hole universe)	Wu	$exp(\mathbf{-N}^6/\mathbf{24}^3)$	0	.
mass-coulomb[kg/(As)]	(m/e)	$[\mathbf{24}/(4\pi*\varepsilon_0*G*\mathbf{N}^2)]^{1/2}$	5.68563139626e-12	.
m/e^2[kg/(As)^2]	m/e^2	$[\mathbf{24}/(4\pi*\varepsilon_0*G*eo*2\alpha*\mathbf{N}^2)]^{1/2}$	35486904.404410	.
G-force[N]	f_G	$Fo*(\mathbf{24/N}^2)$	**29.053523**3800458	.
(at surface D_G^2[N])	.	$G/(2\alpha)^2*(M/D_G)^2$	.	.
.	.	$G/(2\alpha)^2*(m/R_G)^2$	.	.
G-force at R_{eG}[N]	.	$G*(m/R_{eG})^2$	.	.
G-energy at R_{eG}[J]	$m*c^2$	$G*m^2/R_{eG}$	8.1871112256e-14	.
surface-acceleration[m/s^2]	$1/2*c^2/R_{eS}$	$G*m/(R_{eS})^2$	3.3222957362e+73	.
Schwarzschild radius[m]	R_{eS}	$2*G*m/c^2$	1.3526116427e-57	.
.	F_G	$f_G/(2\alpha)^{1/2}$	**240.49227**4666026	.
Coulomb force[N]	f_C	Fo	**1.2105634**7416857e+44	.
(at surface D_C^2[N])	.	$1/\varepsilon_0/(2\alpha)^2*(e/D_C)^2$	.	.
.	F_C	$Fo/(2\alpha)^{1/2}$	**1.0020511**4444177e+45	.
2.grav. force[N]	f_{eG}	$f_G*(\mathbf{24/N}^2)$	**6.9728456**1121009e-42	.
.	.	$G/(2\alpha)^2*(m/r_G)^2$	.	.
G-force at re	.	$G*(m/r_e)^2$	.	.
action time[s]	T_G	$To*[\mathbf{N}^2/(2\alpha*\mathbf{24})]^{1/2}$	2.2830780411305e-21	.
?(TC in question)	$(T_C/T_G)^2$	.	**24/N**^{2}	.
?	T_C	T_G*sqr(24)/N	1.1184752487744e-42	.
mass action time	$\mathbf{t_G}$	$T_G*sqr(4\pi)$	**8.0933009**318381e-21	.
action distance[m]	D_G	$Do*[\mathbf{24}/2\alpha/\mathbf{N}^2]^{1/2}$	1.6426789877111e-55	.

?(DC in question)	$(D_G/D_C)^2$	.	**24/N**^{2}	.
action radius	R_G	D_G/sqr(4π)	4.6339118698974e-56	.
!	R_G/r_G	.	**24/N**^{2}	.
nucleus radius[m]	R_{eG}	R_G*(2α)	**6.7630582**059351e-58	.
outward radius[m]	$\mathbf{r_G}$	R_G*(**N**^{2}/**24**)	**1.9307966**124572e-13	.
Bohr radius[m]	rB	$\mathbf{r_G}$*($2/\alpha$)	**5.2917724**909092e-11	**5.29177**249D-11
classical radius[m]	re	$\mathbf{r_G}$*(2α)	**2.8179409**187222e-15	**2.81794092**D-15
classical radius*[m]	re	1/(Nw*4π*Ry)	**2.81794091872**22e-15	**2.81794092**D-15
universe radius[m]	Ru	re*(**N**^{2}/**24**)	1.174142049e+28	.
.	.	G*Mu/c^2	1.174142051e+28	.
cosmos radius[m]	Rc	Ru/(2α)	8.0449865e+29	.
Kepler radius[m]	r(K)	$(G*m*(\mathbf{t_G}/2\pi)^2)^{1/3}$	4.6547034e-28	.
centriperal radius[m]	r(cent)	$(1/4\pi)*((e*\mathbf{t_G})^2/m/\varepsilon o)^{1/3}$	4.7184749e-14	.
hanson	(cH\`)	$3/2*(h*G/c^3)*(c/2)*1/(4\alpha*\mathbf{r_G})^3$	2.06103727567e-18	.
Hubble-H\`[1/m]	H\`	$3/4*(h*G/c^3)/(4\alpha*\mathbf{r_G})^3$	6.87488034028e-27	.
hanson/geilhaupt[1/m]	H	$(\pi/3)^{1/2}*4\pi Ro^2$/Volume(rG)	7.9384280e-27	.
Area [m^2]	πH^{-2}	3*(Volume(rG)/Surface(Ro)^2	4.9851801e+52	.
Hubble-H[1/m]	H	$(2^4*3^4*\pi^3/\alpha^3)^{1/2}/(\mathbf{N}^3*Do)$	7.9384280e-27	.
Hubble-cH[1/s]	cH	$(2^6*3^4*\pi^3/\alpha^3)^{1/2}*(c/2)/(\mathbf{N}^3*Do)$	2.3798808e-18	.
acceleration[m/s^2](John)	a	c*c*H	7.1347031e-10	.
[m^2/s^4] (Bernoulli)	a^2	$G*(1/2\rho*v^2)$	5.0903988e-19	.
velocity[m/s]	v(G)	$c*H*r_G$	4.5950658e-31	.
velocity[m/s]	v(e)	$c*H*r_e$	3.1484472e-29	.
[J]	E(H\`)	N_A*h*cH\`(electron)	8.224184338e-28	.
(space particle's mass)	.	$m_{Hubble}*c^2$	.	.
backgr. rad.[J]	E(b)	$3/2*k*\Theta b*(\alpha/2)^2$	8.224184338e-28	.
back-rad.-temp.[K]	Θb	$2/3*E(H)/(k*(\alpha/2)^2)$	2.98294149	.
hanson/geilhaupt	.	$(3^3 2^8\pi^3/\alpha^7)^{1/2}*\Theta o*(N_A/\mathbf{N}^3)$	.	.
hanson/geilhaupt/wales	.	$\pi/2(4!)^{3/2}(2\pi/\alpha)^{1/2}\Theta o(\mathbf{N}_w*N_A/\mathbf{N}^3)$	.	.
acceleration[m/s^2]	a_G	f_G/m	3.1894039e+31	.
electric field[V/m]	E	f_C/e	7.5557395e+62	.
magnetic field[Vs/m^2]	B	E/v_{em}	.?	.
Poynting Vector[J/m^2/s]	**S**y	$1/\mu*(\mathbf{E}$ x $\mathbf{B})$	.?	.
(**Intensity**[J/m^2/s])	S2	$m*c^2/R_G^2/\mathbf{t_G}$	4.7109604e+117	.

.	Sy	$m*c^2/r_G^2$ /**t_G**	2.7135132e+32	.
pressure[J/m^3]	p_G	$m*c/r_G^2$ /**t_G**	9.0513057e+23	.
.	.	$1/3*(m*c^2/V_G)$	9.0513057e+23	.
PlanckCharge-eo^2	$h*c*\varepsilon_0$	m***r_G***$(4\pi/\mu_0)$	1.7588378898140e-36	.
.	.	m***r_G***$(1/\mu_{01})$	.	.
Teperature-Dist.[mK]	h*c/k	$(1/k)*m*c^2*$**r_G***(4π)	1.439e-2	.
Volume-accel.[m^3/s^2]	G*m	.	6.0783335938940e-41	.
Volume-ac-sq.[m^3/s^2]^2	h*c*G	$m*c^2*$**r_G***$(4\pi)*G$	1.3254773939397e-35	.
Volume-accel[m^3/s^2]	h*c/m	c^2***r_G***(4π)	2.1806591782155e+5	.
Energy-Dist.[Jm]	h*c	$m*c^2*$**r_G***(4π)	1.98644743971e-25	.
naked charge[Jm]$^{1/2}$	$(h*c)^{1/2}$	$(m*c^2*$**r_G**$*(4\pi))^{1/2}$	4.456957975693e-13	.
Mass-Dist.[kgm]	h/c	m***r_G***(4π)	2.2102208773976e-42	.
Area-flow[m^2/s]	h/m	**r_G***$c*(4\pi)$	**7.2738961**352703e-4	**7.27389**614D-4
Compton-wavelength[m]	h/m/c	**r_G***(4π)	**2.4263105**813081e-12	**2.426310**215D-12
mass-spin(1/2h/2pi)[Js]	Sz	m*c***r_G**	5.2728633456268e-35	**5.272863**346D-35
magnetic moment[Am^2]	μ_Z	$e*c*(1+\alpha/2\pi+..)*$**r_G**	**-9.2847**8638e-24	**-9.2847701**D-24
(charge torus)	μ_Z	e*c*1/2gs***r_G**	.	.
Current*Surface	.	$e*c*1/2R_s$	.	.
torus diameter[m] R_s	$1/2R_s$	.	1.93303990577e-13	.
(point-charge R)	I*A	$1/2*e*\omega*R^2$	.	.
(torus)	I_z*A_s	$1/2*e*(2\pi/2t_{sp})*(1/2R_s)^2$	.	.
(torus/point)	t_{sp}	$sqr(8)*(1/2*gs)*t_s$	2.0256769205e-21	.
(torus)	t_s	$t_G/(8)^{1/2}$	2.8614164970e-21	.
(torus)	t_G	.	8.0933080e-21	.
(hydrogen electron's)	μ_Z	μ_B*gs	.	.
charge-spin[Am^2]	μ_B	e*c***r_G**	**-9.2740154**577865e-24	**-9.2740154**D-24
QED&GR	$\mu_B\mu_B$	$1/(4\pi\mu_0)*(h^2*G/c^2)*(N^2/24)$	.	.
[Jm^3]	Ee*Ve	$\mu_0\mu_B\mu_B$	**+1.0808003**953933e-52	.
[Jm]	(E*V)/S	$c^2*\mu_0*e^2$	**2.8991616**95e-27	.
charge [Jm]$^{1/2}$	Q	$[c^2*\mu_0*e^2]^{1/2}$	**5.3843864**04e-14	.
charge [$g^{1/2}cm^{3/2}s^{-1}$]	Q1	$[2\alpha*h*c]^{1/2}$	**1.7026924**84e-9	.

charge [$g^{1/2}cm^{3/2}s^{-1}$]	qo	$[2\alpha*h*c/4\pi]^{1/2}$	**4.8032068**17e-10	.
charge [As]	e	$[2\alpha*h*c*\varepsilon_0]^{1/2}$	**1.6021773**36e-19	.
[As]/[$g^{1/2}cm^{3/2}s^{-1}$]	e/qo	c(r)	**2.997924580**e9	.
unit magneton[Am^2]	μ_B	$e*h/(4\pi*m)$	.	.
(free-charge spin)	μ_B	$e*V_e*$**r_G**$*(2\pi)^{1/2}$	.	.
Bohr magneton[Am^2]	μ_B	$1/2*e*(\alpha c)*r_B$	**-9.2740154**577865e-24	**-9.2740154**D-24
B-mag-effective[Am^2]	μ_{Beff}	$e*(c/\pi)*(c/2)*t_s$	**-6.5577192**190296e-24	.
.	μ_{Beff}	μ_B/sqr(2)	.	.
.	($t_G/t_s)^2$	.	**24/3**	.
current [A]	I_s	e/t_s	55.99	.
torus action time[s]	t_s	t_G/sqr(8)	2.8614131855431e-21	.
LC-resonance	.	2pi*sqr(Ls*Cs)	.	.
(charge)	.	Ts*sqr(alpha)	.	.
spin-v[m/s](charge)	V_{es}	U_s/T_s	$c/(2\pi)^{1/2}$	.
rolling-v[m/s](charge)	V_{er}	u_s/T_s	$c/(2)^{1/2}$	.
r-orbit-v[m/s](charge)	V_{or}	u_O/T_s	$c*(\alpha)^{1/2}$	.
s-orbit-v[m/s](charge)	V_{os}	U_O/T_s	$c*(\alpha/\pi)^{1/2}$	.
torus action time[s]	Ts	sqr(2pi)*(1/2Rs/Vos)*sqr(1-(Vos/c)^2)	3.34963908723258e-20	.
point rotation time[s]	t_{sp}	t_s/sqr(1.99535782)	2.0256769205e-21	in question
virtual Bohr-? [Vm^2]	Belec	$(\mu_0*c*e)*c*r_G$	-3.4938027527911e-21	.
Bohr-? [Vm^2]	U*A	$(\mu_0*c*e)*c*gs*r_G$	-3.4937860489e-21	.
Power-Area[Wm^2]	h*c*c	$m*c^2*c^2*t_G$	5.955219666352e-17	.
Mass-Time[kgs]	h/c/c	$m*t_G$	7.37250326665373e-51	.
gravity-v[m/s]	v_{gr1}	$(G*(2*m/r_G))^{1/2}$	$c*(4\alpha*24/N^2)^{1/2}$	2.5092215e-14
gravity-v[m/s]	v_{gr2}	$(G*(2*m/R_G))^{1/2}$	$c*(4\alpha)^{1/2}$	51219269.32
elemag-v[m/s]	v_{em}	$E/(\mu*Sy)^{1/2}$	$c*(2\alpha)^3$	931.980377
oscillating-v[m/s] (mass)	v_r	$4*r_G/t_G$	c/π	.
spin-v[m/s](mass, free)	v_i	$2\pi*r_G/t_G$	c/2	.
.	v_i	$2\pi*(r_e/2)/t_e$	c/2	.
.	$v_i*v_{G1}*v_{G2}$	$1/4*(G*m/t_G)$	$c/2*(c*\alpha*c*24/N^2)$	.
Einstein-Temp.[K]	Θ_E	$(h/m)*(c/\kappa)*(1/k)$	8.464629994e+53	in question
Hawking-Temp.[K]	Θ_H	$(1/2\pi)*(h)*(\kappa_H)*(1/k)$	.	.

.	.	$(1/2\pi)*(h)*(c^3/(8\pi*G*M))*(1/k)$	(black hole M)	.
internal-Temp.[K]	Θ_G	$(32\pi)*(h/m)*(v_{i*}v_{G1*}v_{G2}/\kappa 0)*(1/k)$	5.92986187e+9	.
.	.	$4*(h/k/G/m)_*v_{i*}v_{G1*}v_{G2}$	.	.
.	.	$(h/k/\mathbf{t_G})$	.	.
.	.	(m*c^2/k)	5.92986187e+9	.
Wien displacement const [mK]	b_G	$1/2*(9/4)^2*\Theta_G*\mathbf{r_G}$	**2.898**1185e-3	**2.8977073**D-3
.	.	$\Theta_{Geff}*(81/16)*\mathbf{r_{Geff}}$	.	.
[mK]^3	$(b)^3$	$\Theta_1{}^3*\mathbf{V}_1$	.	**2.8977686**D-3
.	.	$5/(2\pi^5)*(h*c/k)^3$	(**2.8977073**D-3)^3	(**2.8977073**D-3)^3
stefan/boltzm.-c[J/m^2/K^4]	σ	$(2\pi^5/15)*k^4/(h^3*c^2)$	**5.6705085**385e-8	.
geilhaupt	Θb	$(3^3 2^8\pi^3/\alpha^7)^{1/2}*\Theta o*([1N]*G/c^4)^{1/2}[mol]*N_A/\mathbf{N}^3)$	2.71113380	.
CMB-temp[K]	Θb	$[(b*\Theta proton)/(\alpha*24*\mathbf{N}*4\pi*\mathbf{r_G})]^{1/2}$	2.725	.
willcoxen	Θb^2	$[(me*c^2)*(mp*c^2)/(h*c)]*(b/k)*1/(\alpha 24\mathbf{N})$	2.725^2	.
[J/m^3/K^4]	a_{wilc}	$(8/15)\pi^5*k*(k/h/c)^3$	7.5657e-16	.
pressure[J/m^3]	p_G	$(30/\pi^3)*a_{wilc}*\Theta_G{}^4$	9.05105e23	.
internal Heat[J]	Q_G	Θ_G*k	**8.18711124e-14**	.
.	.	$m*c^2$	8.1871112256e-14	.
kin. Energy[J]	E_{G2}	$1/2*m*(v_{G2})^2$	2.35788804e-55	.
Radiation-Temp.[K]	Θ_{G2}	$2/3*E_{G2}/k$	1.13853348e-32	.
R-wavelength[m]	λ_{G2}	$(E_{G2}/h/c)$^-1	8.42468949e+29	maximum
Wien displacement const [mK]	b_{G2}	$\Theta_{G2}*(544/15)^{1/3}*\lambda_{G2}$	**2.89776**9444e-3	**2.8977686**D-3
R-frequency[s]	ν_{G2}	E_{G2}/h	3.55849860e-22	minimum
1.BOrbit action time[s]	tO	1/(2*c*Ry)	**1.5198298**497741e-16	.
Bohr-1Orbit-v[m/s]	v_B	$2\pi*r_B/\mathbf{t_O}$	α*c	.
spin-v[m/s](mass, free)	v_i	$2\pi*\mathbf{r_G}/\mathbf{t_G}$	c/2	.
spin-v[m/s](mass, orbit)	v_{iO}	$2\pi*(2\mathbf{r_G})/t_e$	α*c	.
Wales action time[s]	**te**	$\mathbf{t_G}*(\alpha)$	5.9059674427179e-23	.
Wales action time[s]	**te**	tO/Nw	5.9059674427179e-23	.
Wales Quantum Condition	.	$\mathbf{t_G{}^3/(t_e{}^2*t_O)}$	**0.9999999**999999	!!!!!!!!!!!!!
'huge number'	.	$(2\pi)*To^2/(te*\mathbf{t_G})$	**2.4000000**00**e-43**	**2.399996**D-43
Hall resistence[V/A]	R_H	h/e^2	**25812.805**679995	**25812.8056**

Impedance[V/A]	Zo	h/eo^2	**376.73031**371300	**376.7303134**
frequency[Hz]	νo	2*(eo*1V)/h	4.0030085895124e+15	.
Josephson freq[Hz]	νj	2*(e*1V)/h	4.8359766985210e+14	.
1electron-volt[J]	e[1V]	νj*(h/2)	1.602177336e-19	**1.60217733**D-19
1Volt[V]	1V	νj*(h/2)/e	1.000000000	.
backgr. rad. temp(wilcoxen)[K]	Θ_b	$[\pi^3/\alpha*(k/e)]^{-1}$*1V	2.73111	.
1Ampere[A]	1A	νj*(e/2)*3.8740461319e-5	1.000000000	.
[As]/[g$^{1/2}$cm$^{3/2}$s^{-1}]	e/q	c(r)/10	**2.997924580e9**	.
1Kilogram[kg]	**1kg**	?*(10^7*Zo*[A/V])*(2α/3)*Mo	0.999989836	.
?	1kg1Ω	?*(10^7*Zo)*(2α/3)*Mo	0.999989836	.
unit-momentum.	1kg1m/1s	**?*(4π*c)*(2α/3)*Mo**	0.999989836	.
1Kilogram[kg]	**1kg**	?*(4π*c*[s/m])*(2α/3)*Mo	0.999989836	.
fit-number-iridium(1/**Xr**)	**?**	1/(Xr)*(1+3/2*Δh/h)	**1.00001**016(600)	.
1Kilogram[kg]	1kg	Mo*1.8327747027e+7	1.000000000	.
1Second[s]	1s	To*7.4007535909e+42	1.000000000	.
1Meter[m]	1m	Do*2.4686256736e+34	1.000000000	.
1Kilogram[J]	c^2[1kg]	.	8.987551787e+16	.
1electronVolt[1/m]	.	.	8.06554095e+5	.
1Kilogram[MeV]	.	.	5.609586146e+29	**5.60958615**D+29
electron-mass[MeV]	.	.	0.510999066	**0.511004**
cgs (hanson)	.	.	.	.
1A=gr$^{1/2}$cm$^{3/2}$s^{-2}	(n*e)/F	e * (1/[2π^2] * m[c^2]/h)	3.006...E+09	.
1V=gr$^{1/2}$cm$^{1/2}$/s	.	1/e*(3/[2α])$^{1/2}$*1/(2[π^4])*m/2*(αc)^2	3.339...E-03	.
1Ohm=s/cm	1V/1A	(3/[2α])$^{1/2}$ * α/(π*c)	1.111...E-12	.
1W=gr*cm^2/s^3.	1V*1A	.	10^7	.
gr*cm^2/s*cm/s	e^2	hbar * α * c	(4.803206817e-10)^2	.
cm^3/(gr*s^2)	G	e^2/(α*m_Pl^2)	6.672602383e-8	**6.672**59D-8

alpha from the Wales Number (**Nw**=2573380) from **Wales' Theory** using Hamilton Action applied to the electron is in great accordance with the **alpha** from Codata 1986. The Wales theory from 1998 offers the a great advantage. See also the extended alpha calculation. Alpha from codata is related to the electron i.e. to the hydrogen atom's Spin Obit coupling of the electron with the nucleus (using Bohr Sommerfeld)! So does the Wales number (using Hamilton's action). But why alpha can change explains only GR plus II Law applied.