The Newtonian Gravitational Constant: An Exact Value

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Finding that adopted values for the interdependent set of Newtonian gravitational constant [G], Planck mass, Planck length, and Planck time constants cannot be valid, searches of calculation result archives and numerical pattern mappings have determined one unique set within the range of modern laboratory test results for [G]. Based upon the all pervasive, repeating pattern involving multiples of the fine structure constant, the numerical value of [G] as 6.6917625e-11 = (10)^{-10.1744595) also creates a large number of numerical value coincidences with independently existing constants, implying that the inability to relate gravity to the other forces involves an impropriety in the use of units.

Due to the fact that physics has been explored without a proper map, the discovery and implementation of such a device has all the implications one would expect, especially in combination with the techniques of archiving calculation results and of using forms of numerical expression, symbol use, and unit labels that facilitate such tools.(1) This report focuses on the resulting discovery, thanks to the fact that all factoral combinations can be projected in mappings, that the presently adopted values for Planck mass [PM], Planck length [PL], and Planck time [PT] = 1/[Pf] can combine as factors in differing factoral procedures to produce differing numerical results for the same resultant quantity. Whatever might be the individual uncertainties of any of the entities involved, any correct set must always yield identical numerical results, whatever the calculation pathway, and the present 2006 CODATA values(2) as

[PM] = (10)^(- 7.6622533) = 2.176 44 e-8 Kilogram
[PL] = (10)^(-34.7914909) = 1.616 252 e-35 Meter
[PT] = (10)^(-43.2683113) = 5.391 24 e-44 Second
[Pf] = (10)^(+43.2683113) = 1.854 86 e+43 Hertz

fail this test.

In investigation of this obvious discrepancy, noting that [G], [PM], [PL], and [Pf] are interdependent and must be adjusted in combination, it must also be remembered that experimental pursuit of the value of [G] is extremely difficult, and that, as long as there is such a poor understanding of the nature of gravity, no complete characterization or definition of assumptions and unknowns involved in any laboratory setup can be made.

As a consequence, considering alternate values for [G] as well as for [PM], [PL], and [Pf], it becomes apparent that the product of the magnetic constant [d] and square of the fine structure constant [aa],

[d]{[aa]^2} = (10)^(-10.1744595) = 6.6917625079 e-11

has a numerical value very close to atomic interferometer results published in February 2007,(3) and that [G] at (10)^(-10.1744595) produces a particularly unique and striking situation in both the the mapping geometries and the mathematical tables. While there will always be all pervasive, repeating patterns of relationship

among quantities and they will be projected in the vector spaces that are the dimensional analysis mappings, it is the case that if, and only if [G] has the same numerical value as ([d]{[aa]^2}), then all vectors in the dimension space which are parallel to the one joining [G] and [d] will have a value which is some multiple of the fine structure constant, a maximum of numerical pattern alignments involving constants occurs, and a large number of independent and well established constants with differing units share in the value coincidences.

By virtue of the fact that the pattern is all pervasive and does include quantities with different units, the implication is that the system of units is involved, with too few base dimensions, too many base dimensions, some other such basic flaw, or that some select entities are incorrectly defined. Thus a potential explanation for the inability to relate gravity to the other forces is included, as being also involved in any system of units impropriety.

With reference to the symbol and label key,(A) inspection of the table of calculation results below provides compelling evidence for the contention being espoused: it is unreasonable to believe that so many coincidences of value are incorrect and that they should instead be replaced by the near misses that would be required by any other viable values for [G], [PM], [PL], and [PT].

Comparison Table

For the quantity represented by each expression listed, the calculation result on the left uses the values being proposed, as compared to results using values for the involved factors as they are suggested to be in the 2006 CODATA adjustment on the right. As indicated, all numerical values are expressed as common logs, as powers of ten, the symbol between results to be compared indicates whether those results will vary with adjustment of [G], [PM], [PL], and [Pf], and quantities having identical and interchangeable units of measure will be grouped together as indicated, by dollar signs.

$ = DIFFERENT DIMENSIONS, $$ = STILL DIFFERENT DIMENSIONS, etc.
* as divider: value will vary with adjustment of value of [G]
| as divider: value will NOT vary with adjustment of value of [G]

WITH EACH VALUE AS A POWER OF TEN:	G=T-10.1744595 NIST Feb2010
[G]	-10.1744595 * -10.1755956
{[PL]^3}{[Pf]^2}/[PM]	-10.1744594 * -10.1755968
{[PL]^2}[Pf][c]/[PM]	-10.1744594 * -10.1755965
[c^2][PL]/[PM]	-10.1744594 * -10.1755962
[c^2]{[PL]^2}/{[a0][Me][aa]}	-10.1744593 * -10.1755958
([Q0]^2)/([4Pi][aa][k]([PM]^2))	-10.1744593 * -10.1755966
{[PQ]^2}/([k]{[PM]^2})	-10.1744595 * -10.1755962
{([2af][Me]/[B0][PM])^2}/{[4Pi][aa][k])	-10.1744595 * -10.1755966

in k2rmM2trNwtn = kgrmM3trs2nd = Cuulk2rmM3trscndTsla
= fradMetrs2ndt2la = hnryk2rmMetrW2br = Fradk2rmMetrOhmmWaat
= A2prk2rmnwtnW2br = Fradk2rmMetrV2tt = hnrykgrmM3trOhmmscnd

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$ [d]{[aa]^2} = [k]{[v0][d]}^2             -10.1744595 | -10.1744595
$ [k]{[He][a0][d]/[hB]}^2                  -10.1744595 | -10.1744595
$ 4[k]{[aa]^4}{[RK]}^2                     -10.1744597 | -10.1744595
$ [k]{[z0]^2}{[aa]}^2 = [k]{[E0]/[H0]}^2   -10.1744595 | -10.1744595
$ {4([aa]^2)}/({[Jf]^2}[c^2][Me][a0][Pi])  -10.1744595 | -10.1744595
$ [d]{[E0]^2}/{[c^2][B0]^2}                -10.1744595 | -10.1744595
$ {[Q0]^2}{[d]^2}/{[4Pi][Me][a0]}          -10.1744593 | -10.1744595
   in Hnrymetr = a2prNwtn = FradmetrO2mm = FradmetrH2rys2nd

$$ ({[aa]^2}[PL]/[k][PM])^.5               -10.1744595 * -10.1750278
$$ [aa][PQ]/{[c][k][PM]}                   -10.1744595 * -10.1750280
    in f12dk12mMetr = kgrmWebr = CuulfradkgrmScnd

[PM]                                       - 7.6628219 * - 7.6622533
{[hB][c]/[G]}^.5                           - 7.6628219 * - 7.6622538
{[aa]^2}[Me][Pf]/[2af]                     - 7.6628219 * - 7.6622540
[Me][a0][aa]/[PL]                          - 7.6628220 * - 7.6622537
{[PQ]^2}[z0]/{[c][PL]}                     - 7.6628220 * - 7.6622537
([Q0]^2)[d]/{[4Pi][aa][PL]}                - 7.6628218 * - 7.6622537
 in Kgrm = C2ulm2trOhmmScnd = CuulScndTsla = C2ulfradm2trS2nd
 = C2ulHnrym2tr = A2prm2trOhmmScnd = Fradm2trW2br = FradM2trT2la

$ [PQ][c]/[aa]                             - 7.6628219 | - 7.6628217
$ [PC][PL]/[aa]                            - 7.6628218 | - 7.6628218
   in CuulMetrscnd = AmprMetr

$$ [c^4][PL][k]/{[aa]^2}                   - 7.6628218 * - 7.6633900
    in FradM4trs4nd

[PL]                                       -34.7909227 * -34.7914909
{[hB][G]/[c^3]}^.5                         -34.7909228 * -34.7914908
[hB]/{[PM][c]} = [a0]([Me][aa]/[PM])       -34.7909227 * -34.7914913
[G][PM]/[c^2]                              -34.7909228 * -34.7914903
1/{[z0][Pf][k]}                            -34.7909227 * -34.7914906
 in Metr = fradMetrScndohmm

$ [Me]{[aa]^3}/[PQ][2af] = [PQ][aa][d]/[c] -34.7909228 | -34.7909228
$ [PM][aa]/[PC]                            -34.7909228 | -34.7909224
$ [PM][aa]/{[PQ][Pf]}                      -34.7909227 | -34.7909221
   in amprKgrm = cuulKgrmScnd

$$ [c^2][PQ]/{[PM][Pf][aa]}                -34.7909227 * -34.7920592
    in CuulkgrmM2trscnd

$$$ [PM][d]{[aa]^2}/[c^2]                  -34.7909228 * -34.7903542
     in HnryKgrmm3trS2nd

[Pf]                                       +43.2677434 * +43.2683113
{[hB][G]/[c^5]}^.5                         +43.2677435 * +43.2683115
[2af][Pp]/{[p0][aa]}                       +43.2677434 * +43.2683117
[2af][a0]/([PL][aa])                       +43.2677434 * +43.2683116
[2af][PM]/([Me]{[aa]^2})                   +43.2677435 * +43.2683120
[2af][PE]/[He]                             +43.2677434 * +43.2683120
 in Hrtz
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$ [PC][c]/{[aa][PM]}                          +43.2677435 | +43.2677431
$ [PQ][c^3]/{[aa][hB]}                        +43.2677434 | +43.2677435
   in AmprkgrmMetrscnd = CuulM3trjuuls4nd

$$ [PM][aa]/[PQ][PL]                          +43.2677434 * +43.2688802
$$ [PQ][d][aa]/{[PL]^2}                       +43.2677433 * +43.2688798
    in cuulKgrmmetr = CuulHnrym3tr

{[E0]/[H0]}^2 = {[v0][d]}^2 = {[z0][aa]}^2 + 0.8783918 | + 0.8783918
{([He][a0][d])/[hB]}^2 = {[aa]^2}[d]/[k]   + 0.8783918 | + 0.8783918
4{[aa]^4}{[RK]}^2                          + 0.8783916 | + 0.8783918
 in O2mm = H2rys2nd = fradHnry = a2prC2ulf2ad

$ [G]/[k]                                     + 0.8783918 * + 0.8772557
$ [hB][c]/([k]{[PM]^2})                       + 0.8783919 * + 0.8772547
$ {[PL]^3}{[Pf]^2}/{[PM][k]}                  + 0.8783919 * + 0.8772545
   in C2ulf2adk2rmM2tr = fradk2rmM3trNwtn = fradkgrmM4trs2nd

$$ {[c][G]/[aa]}^2                            + 0.8783918 * + 0.8761196
    in k2rmM8trs6nd

[G][c^2][k] = [G]/[d]                         - 4.2736694 * - 4.2748054
[c^4][PL][k]/[PM]                             - 4.2736694 * - 4.2748061
{[PC]^2}{[PL]^2}/{[PM]^2}                     - 4.2736692 * - 4.2748064
 in Fradk2rmM3trNwtns2nd = hnrykgrmM4trs2nd = A2prk2rmM2tr

$ {[aa]^2}                                    - 4.2736694 | - 4.2736693
   is dimensionless

$$ [d][PC]{[aa]^3}/[c^2]                      - 4.2736694 * - 4.2731011
    in amprm2trNwtnS2nd = AmprHnrym3trS2nd

[d] = 1/([c^2][k]) = {[z0]^2}[k]              - 5.9007901 | - 5.9007901
 in a2prNwtn = Hnrymetr

$ [PQ]/([k][c][PM][aa])                       - 5.9007901 * - 5.9013587
   in CuulfradkgrmScnd

$$ [G]/{[aa]^2}                               - 5.9007902 * - 5.9019262
    in kgrmM3trs2nd

[c] = [v0]/[aa] = [E0]/{[aa][d][H0]}          + 8.4768207 | + 8.4768207
[aa][H0]/{[k][E0]} = [z0]/[d]                 + 8.4768207 | + 8.4768207
[PL][Pf]                                      + 8.4768207 | + 8.4768204
[hB]/{[PL][PM]}                               + 8.4768207 | + 8.4768203
 in Metrscnd = metrtslaVltt = AmprfradMetrvltt = hnryMetrOhmm

$ [PM][aa]/[PQ]                               + 8.4768207 * + 8.4773893
   in cuulKgrm

$$ [PM]{[aa]^2}/({[PL]^4}{[Pf^3}[k])          + 8.4768206 * + 8.4779583
$$ {[aa]^2}/{[G][c][k]}                       + 8.4768207 * + 8.4779568
    in fradKgrmm3trS3nd
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[Me][c^2] = [hB][c]/{[a0][aa]}             -13.0868697 | -13.0868697
([Q0]^2)[Ke]/({[aa]^2}[a0])                -13.0868695 | -13.0868697
[Fe][a0]/{[aa]^2} = [He]/{[aa]^2}          -13.0868696 | -13.0868697
{[E0]^2}{[a0]^3][4Pi][k]/{[aa]^2}          -13.0868697 | -13.0868697
{[B0]^2}{[a0]^3}[4Pi]/[d]                  -13.0868697 | -13.0868697
{[PQ]^2}/{[a0][aa][k]}                     -13.0868697 | -13.0868697
[PE][PL]/([a0][aa])                        -13.0868696 | -13.0868693
{[PM]^2}[G]/{[aa][a0]}                     -13.0868697 | -13.0868686
[FBH]([PL]^2)/([aa][a0])                   -13.0868696 | -13.0868697
[PM]{[PL]^3}{[Pf]^2}/([aa][a0])            -13.0868696 | -13.0868699
 in Juul = C2ulfrad = NwtnMetr = FradV2tt = hnryM4trT2la

$ {[PM]^1.5]{[PL]^.5}/([a0]{[k]^.5})       -13.0868697 * -13.0863009
   in f12dK15mm12r = KgrmmetrScndVltt = KgrmMetrTsla

$$ {[PM]^2}[aa]/({[Pf]^2}{[PL]^2}[a0][k])  -13.0868697 * -13.0857320
    in fradK2rmm2trS2nd

[PL]/[PM][d]                               -21.2273107 * -21.2284475
[G][k] = [G][Me][a0]({[Jf][Pi]}^2)/[4Pi]   -21.2273108 * -21.2284468
{[PQ]^2}/{[PM]^2}                          -21.2273108 * -21.2284479
 in hnrykgrmM2tr = FradkgrmM2trs2nd = M4trs4ndv2tt = C2ulk2rm

$ {[aa]^2}/[c^2] = {[aa]^2}[d][k]          -21.2273108 | -21.2273108
   in m2trS2nd = FradHnrym2tr

$$ [aa]({[k][PL]}^.5)/{[PM]^.5}            -21.2273108 * -21.2278791
    in F12dk12m = CuulkgrmmetrScnd

[c^2]/{[d][aa]}                            +24.9912662 | +24.9912662
 in hnryM3trs2nd = A2prkgrmMetr

$ [PC] = {[k]([PL]^3)[PM]([Pf]^4)}^.5      +24.9912662 * +24.9918344
$ {1/[PL]}{[hB][c]/[d]}^.5                 +24.9912662 * +24.9918344
$ [PQ][Pf]                                 +24.9912661 * +24.9918341
$ [PM][Pf]{[G][k]}^.5                      +24.9912661 * +24.9918346
$ ([G]{[PM]^2}/([d]{[PL]^2}))^.5           +24.9912661 * +24.9918349
   in Ampr = Cuulscnd = F12dK12mMetrs2nd = h12yK12mMetrscnd

$$ [PM][aa]/[PL]                           +24.9912661 * +24.9924030
$$ [c^2][aa]/[G]                           +24.9912661 * +24.9924023
    in Kgrmmetr

[G]([PM]^2)                                -25.5001033 | -25.5001022
[PM][PL][c^2]                              -25.5001032 | -25.5001028
{[PL]^3}{[Pf]^2}[PM]                       -25.5001032 | -25.5001034
{[PL]^2}{[PC]^2}[d]                        -25.5001031 | -25.5001031
{[PQ]^2}/[k]                               -25.5001033 | -25.5001032
([Q0]^2)/{[4Pi][k][aa]}                    -25.5001031 | -25.5001032
[hB][c]                                    -25.5001032 | -25.5001032
 in KgrmM3trs2nd = C2ulfradMetr = A2prhnryMetr = JuulMetr

$ [PQ][d][c][aa][PM]                       -25.5001033 * -25.4995346
   in CuulHnryKgrmscnd

$$ [PC]{[PL]^2}[c^2]/[aa]                  -25.5001031 * -25.5006713
    in AmprM4trs2nd
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[G]/[c^2] = [G][d][k]                        -27.1281009 * -27.1292370
[c^2]/[FBH]                                  -27.1281008 * -27.1292372
[PL]/[PM]                                    -27.1281008 * -27.1292376
[Me][a0][aa]/{[PM^2]}                        -27.1281009 * -27.1292380
{[Q0]^2}[d]/([4Pi]{[PM]^2}[aa])              -27.1281008 * -27.1292380
 in kgrmMetr = k2rmmetrNwtnS2nd = C2ulHnryk2rmmetr

$ [aa]/[PC]                                  -27.1281009 * -27.1286691
$ [PQ][d][aa]/[PM][c]                        -27.1281009 * -27.1286695
   in ampr = CuulHnrykgrmm2trScnd

$$ [k]{[d]^2}{[aa]^2} = [d]{[aa]/[c]}^2     -27.1281008 | -27.1281009
    in FradH2rym3tr = Hnrym3trS2nd

[PM][Pf]                                     +35.6049215 * +35.6060580
[c^3]/[G]                                    +35.6049216 * +35.6060577
[hB]/{[PL]^2}                                +35.6049215 * +35.6060579
[FBH][d]/[z0]                                +35.6049215 * +35.6060579
 in Kgrmscnd = K2rmMetrnwtns3nd = Juulm2trScnd = HnrymetrNwtnohmm

$ [PC][c]/[aa]                               +35.6049216 * +35.6054898
   in AmprMetrscnd

$$ [aa]{[PM]^1.5}{[d]^.5}/{[PL]^1.5})       +35.6049215 * +35.6066267
    in KgrmmetrScndTsla

{[PQ]^2}                                     -36.5529546 | -36.5529545
[k][c^2][PL][PM]                             -36.5529545 | -36.5529541
[k][PM]{[PL]^3}{[Pf]^2}                      -36.5529545 | -36.5529547
[[Q0]^2}/{[4Pi][aa]}                         -36.5529544 | -36.5529545
[Me][a0][aa]/[d]                             -36.5529546 | -36.5529545
[hB][c][k]                                   -36.5529545 | -36.5529545
[PL][PM]/[d]                                 -36.5529545 | -36.5529541
[G][k]{[PM]^2}                               -36.5529546 | -36.5529534
 in C2ul = FradJuul = hnryKgrmM2tr

$ [PQ][PM][aa]/[c]                           -36.5529546 * -36.5523859
   in CuulKgrmmetrScnd

$$ ([PM]^2}{[aa]^2}/[c^2]                   -36.5529546 * -36.5518174
    in K2rmm2trS2nd

[Fe]/[Fg] = ([Q0]^2)[Ke]/([G][Me][Mp])       +39.3546349 * +39.3557711
{[PQ]^2}[aa]/{[G][k][Me][Mp]}                +39.3546349 * +39.3557711
{[PQ]^2}[aa][PM][d]/{[Me][Mp][PL]}           +39.3546348 * +39.3557717
[aa]{[PM]^2}/{[Me][Mp]}                      +39.3546349 * +39.3557721
([aa]^2)[PM][a0]/([Mp][PL])                  +39.3546349 * +39.3557717
([aa]^3)[PM][Pf]/([Mp][2af])                 +39.3546348 * +39.3557714
 is dimensionless

$ [PC][a0][aa]/[Mp]                          +39.3546349 * +39.3552032
   in AmprkgrmMetr

$$ [c^4][a0][k]/[Mp]                        +39.3546349 | +39.3546350
$$ {[PC]^2}{[PL]^2}/{[aa][Me][Mp]}          +39.3546351 | +39.3546351
$$ {[PQ]^2}[c^2]/{[aa][Me][Mp]}             +39.3546349 | +39.3546350
    in FradkgrmM4trs4nd = A2prk2rmM2tr = C2ulk2rmM2trs2nd
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[PM][PL] = {[PQ]^2}[d]                        -42.4537446 | -42.4537442
[hB]/[c] = [Me][Re]/[aa] = [Me][a0][aa]       -42.4537446 | -42.4537446
[aa][4Pi][k]{[B0]^2}{[a0]^4}                  -42.4537446 | -42.4537446
[aa][Ke]{[Me^2}/({[B0]^2}{[a0]^2})            -42.4537447 | -42.4537446
([Q0]^2)[d]/([aa][4Pi])                       -42.4537445 | -42.4537446
[Jf][aa]{[Me]^2}/{4[k][B0]}                   -42.4537447 | -42.4537446
4[k][aa]{[w0]^2}/[Pi] = 2[hB][RK][k][aa]      -42.4537447 | -42.4537446
 in KgrmMetr = C2ulHnrymetr = FradM3trT2la = FradJuulmetrOhmmScnd

$ {[PL]^2}[PC]/[aa]                           -42.4537445 * -42.4543127
$ [c][PL][PQ]/[aa]                            -42.4537446 * -42.4543128
   in AmprM2tr

$$ [c^4]{[PL]^2}[k]/{[aa]^2}                  -42.4537445 * -42.4548810
    in FradM5tr

[G][Me]/([a0]{[v0]^2})                        -42.6185437 * -42.6196798
[G]{[B0]^2}[4Pi][k]/{[2af]^2}                 -42.6185437 * -42.6196798
([Me][Fg])/([Fe][Mp]) = [Fge]/[Fe]            -42.6185437 * -42.6196798
([Me]^2)[G][4Pi][k]/([Q0]^2)                  -42.6185439 * -42.6196798
{[Me]^2}/([aa]{[PM]^2})                       -42.6185437 * -42.6196809
[Me][c^2]/({[aa]^2}[FBH][a0])                 -42.6185436 * -42.6196801
[Me][PL]/([a0][PM]([aa]^2))                   -42.6185436 * -42.6196805
[Me][2af]/([PM][Pf]{[aa]^3})                  -42.6185436 * -42.6196802
([PL]^2)/{([a0]^2)([aa]^3)}                   -42.6185435 * -42.6196801
4[PL][B0][k]/({[aa]^2}[PM][Jf])               -42.6185436 * -42.6196805
[Pf]{[PL]^3}/({[aa]^2}{[a0]^3}[2af])          -42.6185435 * -42.6196804
 is dimensionless

[FBH] = [hB][c]/{[PL]^2}                      +44.0817422 * +44.0828786
[G]{[PM]^2}/{[PL]^2}                          +44.0817421 * +44.0828797
[PM][PL]{[Pf]^2} = [c^4]/[G]                  +44.0817422 * +44.0828784
[PM][C^2]/[PL]                                +44.0817422 * +44.0828790
[c][PM][Pf] = {[PC^2]}[d]                     +44.0817422 * +44.0828787
{[PQ]^2}/([k]{[PL]^2})                        +44.0817421 * +44.0828786
 in Nwtn = KgrmMetrs2nd = A2prHnrymetr = C2ulfradmetr

$ {[PM]^1.5}[aa]/({[k]^.5}{[PL]^1.5})         +44.0817422 * +44.0834474
   in f12dK32mmetr = KgrmTsla

$$ [PC][c^2]/[aa]                             +44.0817423 * +44.0823105
    in CuulM2trs2nd

[A0]/[PA] = [4Pi]([a0]^2)/{[4Pi]([PL]^2)}     +49.0290476 * +49.0301841
[PM][Pf]/{[Me][2af]}                          +49.0290477 * +49.0301842
[a0][Pf][aa]/([PL][2af])                      +49.0290476 * +49.0301838
[PE][PM]/{[He][Me]}                           +49.0290477 * +49.0301849
{[Pp]^2}/{[p0]^2}                             +49.0290476 * +49.0301843
 is dimensionless

[PM]/[Pf]                                     -50.9305653 | -50.9305646
 in KgrmScnd = Juulm2trS3nd

$ [PL][PQ]/[aa]                               -50.9305653 * -50.9311335
   in CuulMetr

$$ [c^3]{[PL]^2}[k]/{[aa]^2}                  -50.9305652 * -50.9317017
    in FradM4trs3nd
```

Symbol and Label Key

If four letters are used to identify a unit, then with or without parentheses, brackets, braces, or slash marks these rules can apply AND be used in conjunction with established standards of expression:

1. A capitalized first letter means a positive exponent, if the first letter is not capitalized then the unit has a negative power.
2. Numerals in the second and third positions of the four letter unit label denote the numerator and denominator of the fractional power to which the unit is raised, and lack of a numeral in either internal position correlates to the presence of numeral one:

Ampere : Ampr	Joule: Juul	Newton : Nwtn	Steradian: Strr
Coulomb: Cuul	Katal: Katl	Ohm : Ohmm	Sievert : Svrt
Farad : Frad	Lumen: Lmen	Pascal : Pscl	Tesla : Tsla
Gray : Gryy	Lux : Luxx	Radian : Radn	Volt : Vltt
Henry : Hnry	Meter: Metr	Second : Scnd	Watt : Waat
Hertz : Hrtz	Mole : Mool	Siemens: Smns	Weber : Webr
Becquerel: Bcql	Hrtz = scnd	Scnd = hrtz	Kilogram : Kgrm
degrees Centigrade: Degc	Candela = Cnda	degrees Kelvin: Degk	

([Farad]^+1) = Frad = F1ad = F11d = Fr1d ; ([Farad]^-1) = frad
([Meter]^2) = M21r = M2tr = MetrMetr ; ([Meter]^-.5) = me2r = m12r
etc.

For a term of form: [MASS^x][LENGTH^y][TIME^z]{([Meter]/[Farad])^s}:

ENTRY	has dimensions:	x	y	z	s
AUN = Atomic unit of		.	.	.	.
[2af]=[2Pi][f0] = AUN frequency	scnd	0	0	-1	0
[a0]= AUN length = Bohr atom radius	Metr	0	1	0	0
[A0]= AUN area = [4Pi]([a0]^2)	M2tr	0	2	0	0
[aa]= Fine structure constant		0	0	0	0
[aBH]=[FBH]/[PM]	Metrs2nd	0	1	-2	0
[ae]= [Fe]/[Me]	Metrs2nd	0	1	-2	0
[amu]=Atomic mass unit = [10^-26.7797510 Kgrm]		1	0	0	0
[An]= Avagadro constant	molecules/[Mool]	0	0	0	0
[B0]= AUN Magnetic flux density	Tsla	1/2	-3/2	0	1/2
[BHR]=[G]/[c^2]	kgrmMetr	-1	1	0	0
[Bk]= Boltzmann constant	degkJuul	1	2	-2	0
[Bm]= Bohr Magneton	AmprM2tr	1/2	7/2	-2	-1/2
[c]= Speed of light in vacuum	Metrscnd	0	1	-1	0
[cQ]= Circulation quantum	M2trscnd	0	2	-1	0
[Cw]= Compton wavelength	Metr	0	1	0	0
[d]= Magnetic constant, permeability	Hnrymetr	0	-2	2	1
[E0]= AUN electric field strength	metrVltt	1/2	-1/2	-1	1/2
[f0]= Bohr electron orbital frequency	Hrtz	0	0	-1	0
[FBH]=[G]{[PM]^2}/{[PL]^2} = [c^4]/[G]	Nwtn	1	1	-2	0
[Fe]= [Ke]([Q0]^2)/([a0]^2)	Nwtn	1	1	-2	0
[Fg]= [G][Me][Mp]/([a0]^2)	Nwtn	1	1	-2	0
[Fge]=[G]([Me]^2)/([a0]^2)	Nwtn	1	1	-2	0
[FPQ]=[Ke]{[PQ]^2}/{[PL]^2}	Nwtn	1	1	-2	0
[G]= Gravitational constant	k2rmM2trNwtn	-1	3	-2	0
[Gye]=Gyromagnetic ratio of electron	Cuulkgrm	-1/2	3/2	-1	-1/2
[h]= Planck constant	JuulScnd	1	2	-1	0

[H0]= AUN mag field strength =[B0]/[d]	Amprmetr	1/2	1/2	-2	-1/2
[hB]= AUN action = [h]/[2Pi]	JuulScnd	1	2	-1	0
[He]= AUN energy	Juul	1	2	-2	0
[Hu]= Hubble constant	Hrtz	0	0	-1	0
[i0]= AUN current	Ampr	1/2	3/2	-2	-1/2
[Jf]= Josephson constant	Hrtzvltt=webr	-1/2	-1/2	0	-1/2
[k]= Electric constant, permittivity	Fradmetr	0	0	0	-1
[Ke]= 1/(4[Pi][k])	fradMetr	0	0	0	1
[Me]= AUN mass = Mass of electron	Kgrm	1	0	0	0
[mma]=Electron magnetic moment anomaly		0	0	0	0
[Mn]= Mass of neutron	Kgrm	1	0	0	0
[Mp]= Mass of proton	Kgrm	1	0	0	0
[p0]= AUN Momentum	KgrmMetrscnd	1	1	-1	0
[PA]= [4Pi]([PL]^2)	M2tr	0	2	0	0
[PC]= Planck current	Ampr	1/2	3/2	-2	-1/2
[PE]= Planck energy	Juul	1	2	-2	0
[Pf]= Planck frequency = 1/[PT]	scnd	0	0	-1	0
[Pi]= Circle circumference to diameter ratio		0	0	0	0
[PK]= Planck temperature	Degk	0	0	0	0
[PL]= Planck length	Metr	0	1	0	0
[PM]= Planck mass	Kgrm	1	0	0	0
[Pp]= Planck momentum	KgrmMetrscnd	1	1	-1	0
[PQ]= Planck charge = ([hB][c][k])^.5	Cuul	1/2	3/2	-1	-1/2
[PT]= Planck time	Scnd	0	0	1	0
[PV]= ([4Pi]/3)([PL]^3)	M3tr	0	3	0	0
[Pw0]=AUN power	Waat=Juulscnd	1	2	-3	0
[q0]= AUN electric dipole moment	CuulMetr	1/2	5/2	-1	-1/2
[Q0]= AUN charge = Electron charge	Cuul	1/2	3/2	-1	-1/2
[QD0]=AUN charge density	Cuulm3tr	1/2	-3/2	-1	-1/2
[qD0]=AUN electric quadrapole moment	CuulM2tr	1/2	7/2	-1	-1/2
[QeM]=[Q0]/[Me]	Cuulkgrm	-1/2	3/2	-1	-1/2
[Rc]= Rydberg constant	metr	0	-1	0	0
[Re]= Classical electron radius	Metr	0	1	0	0
[RK]= von Klitzing constant	Ohmm	0	-1	1	1
[Rp]= Proton Compton wavelength	Metr	0	1	0	0
[Tc]= Thompson cross section	M2tr	0	2	0	0
[u0]= AUN magnetic dipole moment	AmprM2tr	1/2	7/2	-2	-1/2
[ue]= Electron magnetic moment	AmprM2tr	1/2	7/2	-2	-1/2
[v0]= AUN velocity	Metrscnd	0	1	-1	0
[V0]= ([4Pi]/3)([a0]^3)	M3tr	0	3	0	0*
[vT0]=AUN voltage	Vltt=amprWaat	1/2	1/2	-1	1/2
[w0]= Magnetic flux quantum	Webr	1/2	1/2	0	1/2
[z0]= Intrinsic impedance of vacuum	Ohmm	0	-1	1	1

(1) J Aikman, "Geometrical Dimensional Analysis", located at URL http://www.outlawmapofphysics.com

(2) P J Mohr, B N Taylor, and D B Newell, "CODATA Recommended Values of the Fundamental Physical Constants: 2006", Journal of Physical and Chemical Reference Data, vol 37, no 3, 2008, p 1187

(3) J B Fixler, G T Foster, J M McGuirk, and M A Kasevich, "Atom Interferometer Measurement of the Newtonian Constant of Gravity", Science, vol 315, no 5808, January, 2007, p 74