Dahl Winters: Pascals, proton electron ratio & Bjerknes force 2.0

(((((c^7) / (hbar * (G^2)))) / ((3.5722072e+34 * 9.1224509E+20)^2)) / (0.5pi))^(1 / 3) = 6.52464029327

(planck length)*1.50122737E+23 = 2.4263263-12 m
Compton wavelength

2pi*hbar/2.4263263e-12m*c = 510995.563 eV

(1 / ((((1.50122737E+23^4) / 6.5248935) / (8^0.5))^0.25)) / Boltzmann constant = 1.00000 m-2 kg-1 s2 K

1 / ((((Boltzmann constant^4) / 6.5248935) / (8^0.5))^0.25) = 1.50122737e+23 m-2 kg-1 s2 K

(((2pi) /(3^0.5 planck length/m) pascals^-1) * ((8.74931845e-16 m)^3)) / (c^2)) = proton mass

(((2pi) * (3.5722072e+34 pascals) * ((8.74931845e-16 m)^3)) / (c^2)) = proton mass

https://physics.nist.gov/cgi-bin/cuu/Value?rp = 0.8751(61) x 10-15 m

(((2pi) * 9.1224509E+20 pascals * ((2.4263102367E-12 m)^3)) / (c^2)) = electron mass

(((c^9) / ((G^3) * hbar))^0.5) / ((c^7) / (hbar * (G^2))) = 5.39115755e-44 seconds

(Planck Viscosity)/(Planck Pressure) = (Planck Time)

1 / ((9.12226973e+20 pascals * ((2.4263263e-12 m) / c)) / (9.12226973e+20 pascals)) = 1.23558178e+20 hertz

2.4263e-12 m & 5.1100e+5 eV & 1.23558178e+20 hertz

((((2.4263263e-12 / 8.749565015e-16) * (2pi))^6) / (6.5248935 / (2pi))) / (c^3) = 1 s3 / m3

(((6.5248935 / (2pi)) / (c^3)) * G * (2pi)) / planck length = 1 m-1 kg-1 s

((((((2.4263263e-12 / 8.749565015e-16) * (2pi))^6) / G) * planck length) / (6.5248935^2)) * (2pi) = 1 kg s2 / m2

((((((2.4263263e-12 m) / (8.749565015e-16 m)) * (2pi))^6) * planck length) / ((6.5248935 ((kg m) / s))^2)) * (2pi) = 6.67408002e-11 m-1 kg-2 s2

4 / ((((3.5722072e+34 pascals) / (9.1224509E+20 pascals)) * 5) / (c^2)) = 1836.14209 m2 / s2

c / (1836.15267389 * 376.730313462 * (10^0.5)) = 137.050728 m / s

1 / (1836.15267389 * (10^0.5) * (4e-7 * pi)) = 137.050727916

1 / (137.035999172 * 1836.15267389 * (10^0.5)) = 0.00000125677

(1 / (137.035999172 * 1836.15267389 * (10^0.5))) / (4e-7pi) = 1.00010748084

((137.035999172 * 1836.15267389 * (4e-7pi))^2) * 10 = 0.99978507296

(c / ((((137.035999172 * 1836.15267389)^2) * 10)^0.5)) / 376.730313462 = 1.00010748 m / s

(c / (((1836.15267389^2) * 10)^0.5)) / 376.730313462 = 137.050728 m / s

(c / (((137.035999172^2) * 10)^0.5)) / 376.730313462 = 1836.35003 m / s

https://drive.google.com/open?id=1r5byv4Ve0fE6mbJWm7JUM8hXeb6xBFok

https://drive.google.com/file/d/1RPhYYtYSBkyBrFxGy09ISNhLygX3HCir

https://drive.google.com/file/d/1r5byv4Ve0fE6mbJWm7JUM8hXeb6xBFok

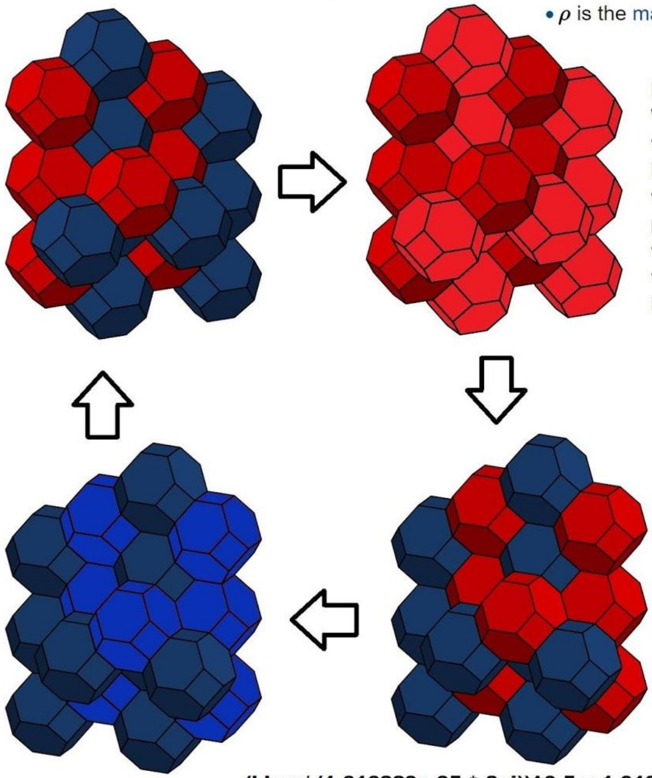
https://drive.google.com/file/d/16XVzw440b_IEkt64NfG7W5gfTpHjAB5J

(((6.666666666e-11 / 2) * pascals) / (3.7037037037037e-28 * (kg / (meter^3))))^0.5 = 300000000 m / s

$$f_0 = \frac{1}{2\pi R_0}\sqrt{\frac{3\gamma p_0}{\rho}}$$

where:

- γ is the specific heat ratio of the gas
- R_0 is the steady state radius **3.7037e-28 meters**
- p_0 is the steady state pressure **6.666e-11/2 Pascals**
- ρ is the mass density of the surrounding liquid **3.70373-28 kg**



Pulsation

When bubbles are disturbed, they pulsate (that is, they oscillate in size) at their natural frequency. Large bubbles (negligible surface tension and thermal conductivity) undergo adiabatic pulsations, which means that no heat is transferred either from the liquid to the gas or vice versa. The natural frequency of such bubbles is determined by the equation:

$$f_0 = \frac{1}{2\pi R_0}\sqrt{\frac{3\gamma p_0}{\rho}}$$

$$\frac{-p^2}{\hbar^2} + \frac{E^2}{\hbar^2 c^2} - \left(\frac{mc}{\hbar}\right)^2 = 0$$

$$-p^2c^2 + E^2 - m^2c^4 = 0$$

$$E^2 = p^2c^2 + m^2c^4$$

$$E = \pm\sqrt{p^2c^2 + m^2c^4}$$

(hbar / (1.616229e-35 * 2pi))^0.5 = 1.01905282 = (Planck Momentum)^0.5

((3.7037037037e-28 m) / (1.666666666e-35 m)) / (3e+8 / 1822.5) = 135

((Friedman Length m) / (Planck Length)) / (speed of light / (Proton Electron Mass Ratio)) = Fine Structure Constant