$$\Delta U = \Delta Q + \Delta W$$
$$\Delta W_{mech} = \Delta U - \Delta Q - \sum_i \Delta W_i$$
$$\Delta Q = Q_{metabolizmus} + Q_{veszteség}$$
$$j_Q = -k\nabla T$$
$$BMR = \left.\frac{dQ}{dt}\right|_{nyugalom}$$
$$S = k_B \ln W$$
$$\Delta U = T\Delta S - p\Delta V + \sum_{i=1}^{K} \mu_i \Delta n_i + \ldots +$$
$$E = E_{pot} + E_{kin} + U$$
$$\Delta S_m(T_{op}) = \frac{\Delta H_m}{T_{op}} > 0$$
$$-\frac{1}{A_s}\frac{dQ}{dt} = h_c \cdot (T_{bőr} - T_{levegő})$$
$$\mathbf{j}_A = -D\nabla c_A$$
$$\frac{dm}{dt} = A_s \cdot \rho \cdot v$$
$$x_i(t) = \sqrt{2D} \cdot t^{1/2}$$
$$P_{erm} \propto K_m \cdot D$$
$$S = S_{term} + S_{konf}$$
$$\frac{dE}{dt} = I_{be} + I_{ki} = I$$
$$\nabla = \frac{\partial}{\partial x}\mathbf{e}_x + \frac{\partial}{\partial y}\mathbf{e}_y + \frac{\partial}{\partial z}\mathbf{e}_z$$
$$\frac{dT}{dt} = \frac{BMR}{C \cdot m_b}$$
$$S(T) = \int_0^T \frac{C_P}{T} dT + \Delta S_{konfig}$$
$$\Delta S = \int \frac{C_m}{T} dT$$
$$\Delta_e S_m \approx -R(x_A \ln x_A + x_B \ln x_B)$$
$$BMR \propto m_b^{3/4}$$
$$\frac{\partial c}{\partial t} = D\nabla^2 c$$
$$\frac{\partial \rho_E}{\partial t} = -\nabla \mathbf{j}_E = -\mathbf{div}\ \mathbf{j}_E$$
$$\frac{d\rho_E}{dt} = -\frac{\mathbf{j}_E(x+\Delta x) - \mathbf{j}_E(x)}{\Delta x}$$
$$R = \varepsilon\sigma(T_1^4 - T_2^4)$$
$$\frac{\partial c_A(\mathbf{r},t)}{\partial t} = -\nabla j_n = -div \cdot j_n$$
$$\frac{\partial T}{\partial t} = \alpha\nabla^2 T$$
$$c_f(x,t) = c_o\left[1 - erf\left(\frac{x}{2\sqrt{Dt}}\right)\right]$$
$$\left(\frac{\partial c}{\partial t}\right)_x = D\left(\frac{\partial^2 c}{\partial x^2}\right)_t$$
$$\frac{\partial T}{\partial t} = \alpha\nabla^2 T$$
$$W = \frac{(N_A + N_B)!}{N_A!\, N_B!}$$
$$\Delta S = \frac{Q_{forr}}{T_{fp}} = \frac{\Delta H_{forr}}{T_{fp}}$$
$$\frac{d\rho_E}{dt} = \frac{1}{V}\frac{dE}{dt} = \frac{1}{(\Delta x)^3}\frac{dE}{dt}$$
$$\left(\frac{\partial c}{\partial t}\right)_r = D \cdot \left(\frac{\partial^2 c}{\partial r^2} + \frac{2}{r}\frac{\partial c}{\partial r}\right)$$
$$c(x) = -K_m \frac{c_b - c_j}{d} x + K_m \cdot c_b$$
$$\ln\left(\frac{2c_1 - c_o}{c_o}\right) = -\frac{2AP_{erm}}{V} \cdot t$$
$$\pi_{id} = \frac{RT}{M_2} c_2$$
$$c_M(t) = \frac{c_o \delta_s}{(4\pi D)^{1/2}} \cdot t^{-1/2}$$
$$j_n = -D\nabla c$$
$$j_Q = -k\nabla T$$
$$j_i = -\eta\nabla v$$
$$\left(\frac{\partial Q}{\partial T}\right)_V < \left(\frac{\partial Q}{\partial T}\right)_p$$
$$dS_{term} = \frac{C_V}{T} dT < 0$$
$$c_f(x,t) = \frac{c_o}{2}\left[1 - erf\left(\frac{x}{\sqrt{4Dt}}\right)\right]$$
$$i = [1 + \alpha(\nu - 1)]$$
$$f / r_0^2 \pi = G(\lambda_x - \lambda_x^{-2})$$
$$v_{kr} = R_e \frac{\eta}{\rho \cdot d}$$
$$p + \frac{1}{2}\rho v_x^2 + \rho g h = konst.$$
$$G = \frac{E}{2(1+\nu)}$$
$$\tau = \eta\nabla v$$
$$-\frac{dQ}{dt} = \rho c_p (T_{ki} - T_{be}) \frac{dV}{dt}$$
$$\alpha = \frac{k}{\rho \cdot C_p}$$
$$D = \frac{k_B T}{6\pi\eta R}$$
$$\pi = \frac{RT}{M_2} c_2 \cdot i$$
$$Bi = \frac{k_m \cdot L}{D_{eff}}$$
$$\overline{v_x} = \frac{I_V}{R_o^2 \pi} = \frac{R_o^2}{8\eta}\frac{\Delta P}{L} = \frac{1}{2} v_{max}$$
$$v_x(r) = \frac{\Delta P}{4L\eta}(R^2 - r^2) = \frac{\Delta P R^2}{4L\eta}\left(1 - \frac{r^2}{R^2}\right)$$
$$R_e = \frac{v d \rho}{\eta}$$
$$P_{erm} = \frac{j_n}{\Delta c} = \frac{K_m D}{d}$$
$$-\frac{dQ}{dt} = \Delta h \cdot (\rho_{lev}^{ki} - \rho_{lev}^{be}) \frac{dV}{dt}$$
$$\frac{dQ}{dt} = f \cdot BMR$$
$$Pe = \frac{t_{diff}}{t_{konv}} = \frac{L \cdot v}{D}$$
$$\tau = \frac{F}{A_S}$$
$$\eta_{rel} = \frac{\eta}{\eta_o}$$
$$D = \frac{k_B T}{6\pi\eta a_r}$$
$$c^* \propto N_m^{1-3\nu}$$
$$R = a_s \cdot N_m^{3/5} \quad R = a_s \cdot N_m^{1/2}$$
$$\eta_{sp} = \eta_{rel} - 1$$
$$v_{max} = \frac{R^2}{4\eta} \cdot \frac{\Delta P}{L}$$
$$\gamma = \frac{du_x(y)}{dy}$$
$$\frac{f}{A} = E\frac{\Delta l}{l_o}$$
$$\frac{\partial c_A}{\partial t} = D \cdot div \cdot (grad \cdot c_A) = D\nabla^2 c_A$$
$$I_V = \frac{\pi \cdot R_o^4}{8\eta} \cdot \frac{\Delta P}{L}$$
$$\eta = \eta_o(1 + 2.5\Phi)$$
$$\eta = \eta_o(1 + \nu_a \Phi)$$
$$E = E_{max} \cdot \sin\left(2\pi\frac{t}{T} + 2\pi\frac{x}{\lambda} + \Phi\right)$$
$$h * f = h * \frac{c}{\lambda}$$
$$\eta(T) = \eta_o \cdot \exp\left(\frac{E_a}{RT}\right)$$
$$[\eta] = \lim_{c \to 0} \eta_{red}$$
$$\eta_{red} = \frac{\eta_{sp}}{c}$$
$$f_\eta = 6\pi\eta a_r v_x$$
$$\frac{d\gamma}{dt} = \frac{d}{dt}\left(\frac{du_x}{dy}\right) = \frac{d}{dy}\left(\frac{du_x}{dt}\right) = \frac{dv_x}{dy}$$
$$M_n = \frac{\sum_i n_i M_i}{\sum_i n_i}$$
$$M_w = \frac{\sum_i n_i M_i^2}{\sum_i n_i M_i}$$
$$f_U = f - T\left(\frac{\partial f}{\partial T}\right)_{\lambda,V}$$
$$Z_{csatoló} \approx \sqrt{Z_{forrás} Z_{bőr}}$$
$$|f_D| = 2\frac{v_R \cos\theta}{c} f$$
$$\Phi_{em} = \frac{N_{em}}{N_{absz}} = \frac{k_{em}}{k_{em} + k_{belső} + k_{külső}} \approx \int F(\nu)d\nu$$
$$c^* = \frac{N_m \cdot V_m}{V_{coil}}$$
$$f_S = T\left(\frac{\partial f}{\partial T}\right)_{\lambda,V}$$
$$J = J_o e^{-\mu x} = J_o e^{-\mu_m \rho x}$$
$$f' = f\left(1 \pm \frac{v_M}{c}\right)$$
$$\Delta f = f_D = \pm 2\frac{v_R}{c} f$$
$$v_T = \frac{(t_1 - t_2)c}{2T\cos\theta}$$
$$f' = f\left(1 \pm \frac{2v_R}{c}\right)$$
$$P_{rte} = konst * U^2 * I * Z$$
Konst = 1.1*10 $^{-9}$ 1/V
$$q_e U = \frac{1}{2} m_e v^2 = h f_h = h\frac{c}{\lambda_h}$$
$$\lg \frac{J_0}{J} = \varepsilon(\lambda) * c * l$$
$$R = \left[\frac{Z_2\cos\alpha - Z_1\cos\gamma}{Z_2\cos\alpha + Z_1\cos\gamma}\right]^2$$
$$A_{U,\,visszacsatolt} = \frac{A_U}{1 - \beta A_U}$$
$$R = \frac{J_{visszavert}}{J_{bejövő}} = \left(\frac{Z_1 - Z_2}{Z_1 + Z_2}\right)^2$$
$$\kappa = \frac{-\Delta V / V}{\Delta p}$$
$$c = \frac{1}{\sqrt{\rho\kappa}}$$
$$\tau_m = konst * \lambda^3 Z^3$$
$$\lambda_h = \frac{h * c}{q_e}\frac{1}{U}$$
$$p = \frac{I_{VV} - I_{VH}}{I_{VV} + I_{VH}}$$
$$2d\sin\theta = n\lambda$$
$$d \approx \lambda$$
$$S_N = S_P = 1/2$$
$$D = \frac{4Z_1 Z_2 \cos^2\alpha}{(Z_2\cos\alpha + Z_1\cos\gamma)^2}$$
$$p = p_{max}\sin\left[\omega\left(t - \frac{x}{c}\right)\right]$$
$$Z = \frac{p}{v} = \frac{p_{max}}{v_{max}}$$
$$\mu_Z = m_S \frac{h}{2\pi} = m_S \hbar$$
$$L\cos\Theta = L_z = \frac{h}{2\pi} m_l$$
$$|\vec{L}| = L = \frac{h}{2\pi}\sqrt{l(l+1)} \approx \frac{h}{2\pi} l$$
$$\varepsilon = \frac{C}{C_o} = \frac{E_o}{E} > 1$$
$$\delta_{lat} \sim \frac{F}{2R} \cdot \lambda$$
$$\gamma = \operatorname{asin}\left(\frac{c_2 \sin\alpha}{c_1}\right)$$
$$\frac{\alpha}{f \cdot x}$$
$$P_{el} = \frac{1}{Z_{el}} U_{eff}^2$$
$$J = \frac{1}{Z}\Delta p_{eff}^2$$
$$\boxed{Z = c\rho} = \sqrt{\frac{\rho}{\kappa}}$$
$$m_s = \pm\frac{1}{2}$$
$$\Delta E \sim 2\mu_Z B$$
$$E = E_0 - |\vec{H}| * |\vec{\mu}| * \cos\phi$$
$$|\vec{\mu}_l| = \frac{e}{2m}|\vec{L}| = \frac{eh}{4\pi m_e} l$$
$$\Delta p(t,x) = \Delta p_{max}\sin\left[2\pi\left(\frac{t}{T} - \frac{x}{\lambda}\right)\right]$$
$$c \cdot T = \lambda, \quad c = f \cdot \lambda$$
$$\frac{p_{max}}{v_{max}} = \rho c = Z$$
$$K = m\omega_0^2$$
$$\frac{1}{2}K\langle x^2\rangle = \frac{1}{2}k_B T$$
$$(R^2)_{átlag} = 2L_p L$$
$$\frac{FL_p}{k_B T} \sim \frac{R}{L}$$
$$\Delta E = E_2 - E_1 = (E_o - E_{mágn.2}) - (E_0 - E_{mágn.1}) = \mu_z B\cos\phi + \mu_z B\cos\phi \approx 2\mu_z B$$
$$|\vec{\mu}_S| = \frac{eh}{4\pi m_e} = \mu_B$$
$$\Delta E = 2\mu B = hf$$
$$E_{mbenv} = \sum_i^{natom} \Delta G_i^{ref}(z')$$
$$\Delta G_i^{ref}(z') = (1 - f(z')) * (\Delta G_i^{ref,chex} - \Delta G_i^{ref,water})$$
$$\kappa = \frac{4\pi}{3}\frac{Er^4}{L^3}$$
$$\kappa = \frac{F}{\Delta L}$$
$$\varepsilon = \frac{\Delta L}{L}$$
$$\sigma = \frac{F}{A}$$
$$\frac{F}{A} = E\frac{\Delta L}{L}$$
$$\delta = 0{,}61 \cdot \lambda / (n \cdot \sin\omega)$$
$$\frac{N_2}{N_1} = e^{-\frac{\Delta E}{kT}}$$
$$E_{prot} = W_{rot}E_{rot} + W_{atr}E_{atr} + W_{rep}E_{rep} + W_{solv}E_{solv} + W_{pair}E_{pair} + W_{mbenv}E_{mbenv} + W_{hbond}E_{hbond} - E_{ref}$$
$$E_{solv} = -\sum_i^{natom}\sum_{j>i}^{natom}\left\{\frac{2\Delta G_i^{free}}{4\pi\sqrt{\pi}\lambda_i r_{ij}^2}\exp(-d_{ij}^2)V_j + \frac{2\Delta G_j^{free}}{4\pi\sqrt{\pi}\lambda_j r_{ij}^2}\exp(-d_{ji}^2)V_i\right\}$$
$$E_{Cb} = \frac{q_1 * q_2}{\varepsilon * r}$$