Contribution to the leptons generation problem?

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There are some details to be added to our paper titled “Short note on the particle generations problem”, see http://culetto.at/private_research_associates/sciencephilosophy2.pdf (2006). All symbols used then/there remain unchanged. The empirical Planck mass – leptons rest mass ratio approximation formulae Eqs.(2) and (3) would be fitted by using the CODATA Planck, electron and tau particle masses in order to get the M_P/m_{muon} masses ratio right.

$$\frac{M_P}{2m_e} \approx \frac{\sqrt{2}\,\ln(\delta_{2D})}{\sqrt{\pi P}|c_D|\ln(\delta)} \exp(\gamma^{1/2} e^{\pi/2+1/2} \pi^{e/2+1/2}) \qquad \text{Eq.(1)}$$

$$\frac{M_P}{m_i} \approx \frac{2\ln(\delta_{2D})}{\sqrt{\xi_{0i}P}\,\Gamma(\xi_{0i})|c_D|\ln(\delta)} \exp(\gamma^{1/2} e^{B(1/2,\,\xi i)/2+1/2} B(1/2,\,\xi_i)^{e/2+1/2}) \qquad \text{Eq.(2)}$$

$$\xi_i = (1/2 + \frac{\pi^2\Gamma(\pi/2+1/2)^2\xi_{0i}^2}{4\Gamma((e/2+1/2)\ln(\pi))\Gamma(1/2-\xi_{0i})}) \qquad \text{Eq.(3)}$$

Eq.(3) had been found in a tentative procedure, when testing various formulae nonlinear in ξ_{0i} with a decreasing degree of self-similarity compared to parts of Eq.(1). For $\xi_{0e}=1/2$, the generalized Eq.(2) reduces to Eq.(1). From the $1/\sqrt{\pi P/2}$ pre-factor, its geometric mean structure would then be used again in the charged leptons' family context. As most of the argumentation relies on *Mandelbrot set's* (combinatorial) features, the just small residues of self-similarity eventually left in Eq.(3) didn't come as a surprise. But the maybe reason behind could possibly get such: our meanwhile found empirical relation between massive gauge boson masses and the $\Gamma(\pi/2+1/2)^2$ and $\Gamma((e/2+1/2)\ln(\pi))$ factors of Eq.(3). With $m(Z^0) = 91.1876[GeV/c^2]$, $m(W^\pm) = 80.385[GeV/c^2]$ the relation $\sqrt{m(Z^0)/m(W^\pm)} \approx \Gamma(\pi/2+1/2)^2$ is almost perfect, the left-hand side yielding 1.065075 versus 1.0650788… on the right.

An even better fit in terms of the vector boson masses and the arithmetic - geometric mean M(1/2, P), i.e. such of the external angle values belonging to the Mandelbrot set's left end (a Misiurewicz point) and the main series' Myrberg-Feigenbaum point c_D would be found:

$$\big(M(1/2,P)m(Z^0) + (1 - M(1/2,P))m(W^\pm)\big)/m(W^\pm) \approx \Gamma((e/2+1/2)\ln(\pi)), \qquad \text{Eq.(4)}$$

the relation's left-hand side yielding 1.0611689 versus Γ's 1.061169174… on the right, and $M(a,b) = 0.5\pi / INT(1/\sqrt{a^2\cos(\Theta)^2 + b^2\sin(\Theta)^2}, \Theta, 0, \pi/2)$ used. Inserting the gamma functions' “equivalents” into Eq.(3) eventually ends up with having the geometric mean of the boson masses in the equation's quadratic term's numerator:

$$\xi_i \approx \Big(1/2 + \frac{\pi^2\sqrt{m(Z^0)m(W^\pm)}\,\xi_{0i}^2}{4\big(M(1/2,P)m(Z^0) + (1 - M(1/2,P))m(W^\pm)\big)\Gamma(1/2-\xi_{0i})}\Big) \qquad \text{Eq.(5)}$$

Massive gauge bosons' maybe occurrence in the Mandelbrot set context is a new feature of our work.