In this chapter questions related to the hierarchy of Planck constants and p-adic coupling constant evolution (CCE) in the TGD framework are considered.

\begin{enumerate}

\item Is p-adic length scale hypothesis (PLS) correct in this recent form and can one deduce this hypothesis or its generalization from the basic physics of TGD defined by K\"ahler function of the "world of classical worlds" (WCW)? The fact, that the scaling of the roots of polynomial does not affect the algebraic properties of the extension strongly suggests that p-adic prime does not depend on purely algebraic properties of EQ. In particular, the proposed identification of p as a ramified prime of EQ could be wrong.

Number theoretical universality suggests the formula $exp(\Delta K)= p^n$, where ΔK is the contribution to K\"ahler function of WCW for a given space-time surface inside causal diamond (CD).

\item The understanding of p-adic length scale evolution is also a problem. The "dark" CCE would be $\alpha_K = g_K^2/2h_{eff} = g_K^2/2nh_0$, and the PLS evolution $g_K^2(k)=g_K^2(max)/k$ should define independent evolutions since scalings commute with number theory. The total evolution $\alpha_K= \alpha_K(max)/nk$ would induce also the evolution of other coupling strengths if the coupling strenghts are related to α_K by M\"obius transformation as suggested.

\item The formula $h_{eff}=nh_0$ involves the minimal value h_0. How could one determine it? p-Adic mass calculations for $h_{eff} =h$ lead to the conclusion that the CP_2 scale R is roughly $10^{7.5}$ times longer than Planck length l_P. Classical argument however suggests $R\simeq l_P$. If one assumes $h_{eff}=h_0$ in the p-adic mass calculations, this is indeed the case for $h/h_0= (R(CP_2)/l_P)^2$. This ratio follows from number theoretic arguments as $h/h_0= n_0= (7!)^2$. This gives $\alpha_K=n_0/kn$, and perturbation theory can converge even for $n=1$ for sufficiently long p-adic length scales. Gauge coupling strengths are predicted to be practically zero at gravitational flux tubes so that only gravitational interaction is effectively present. This conforms with the view about dark matter.

\item Nottale hypothesis predicts gravitational Planck constant $ \hbar_{gr}= GMm/\beta_0$ ($\beta_0=v_0/c$ is velocity parameter), which has gigantic values. Gravitational fine structure constant is given by $\alpha_{gr}= \beta_0/4\pi$. Kepler's law $\beta^2=GM/ r=r_S/2r$ suggests length scale evolution $\beta^2=xr_S/2L_N =

\beta^2_{0,max}/N^2$, where x is proportionality constant, which can be fixed.

Phase transitions changing β_0 are possible at $L_N/a_{gr} =N^2$ and these scales correspond to radii for the gravitational analogs of the Bohr orbits of hydrogen. p-Adic length scale hierarchy is replaced by that for the radii of Bohr orbits. The simplest option is that β_0 obeys a CCE induced by α_K.

This picture conforms with the existing applications and makes it possible to understand the value of β_0 for the solar system, and is consistent with the application to the superfluid fountain effect.

\end{enumerate}