p-Adic length scale hypothesis

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1. assumes that
   (a) p-adic primes p near to powers of two, that is $p \simeq 2^k$, k some integer, are physically preferred.
   (b) Mersenne primes $p = M_n = 2^n - 1$ are preferred physically.
2. predicts that
   (a) weak bosons correspond to M_{89}.
   (b) gluons correspond to M_{107} characterizing the effective p-adic topology of hadronic space-time sheets.
   (c) atomic nuclei correspond to Gaussian Mersenne $M_{G,113}$.
   (d) charged leptons correspond to Mersennes and Gaussian Mersennes. Electron corresponds to M_{127}, the largest Mersenne prime not defining super-astronomical p-adic length scale. Muon corresponds to Gaussian Mersenne $M_{G,113}$. τ lepton corresponds to M_{107}.
3. "almost-predicts" copies of hadron physics and weak physics and new hadron like physics such as
   (a) M_{89} hadron physics at LHC mass scale for which RHIC and LHC have given strong indications.
   (b) copies of hadron and weak physics in biologically interesting length scale range 10 nm-2.5 micrometers containing four Gaussian Mersennes.
   (c) leptohadron physics at p-adic length scales assignable to leptons and their colored excitations possible in TGD for which evidence exists for all charged leptons.
4. makes sense in all length scales, even cosmological ones.