The question whether TGD predicts Higgs or not has been one of the longstanding issues of TGD. For 10 years ago I would not have hesitated to tell that TGD does not predict Higgs and had good looking arguments for my claim. During years my views have been alternating between Higgs and no-Higgs option. In the light of after wisdom the basic mistake has been the lack of a conscious attempt to localize precisely the location of the problem and suggest a minimal modification of standard theory picture to solve it.

Now the situation is settled experimentally: Higgs is there. It is however somewhat too light so that Higgs mechanism is not stable against radiative corrections. SUSY cannot take care of this problem since LHC demonstrated that SUSY mass scale is too high. One has the problem known as loss of \blockquote{naturalness}. Hence Higgs is not yet a fully written page in the history of physics. Furthermore, the experiments demonstrate the existence of Higgs, not the reality of Higgs mechanism. Higgs mechanism in fermionic sector is indeed an ugly duckling: the dimensionless couplings of fermions to Higgs vary in huge range: 12 orders of magnitude between neutrinos and top quark.

\begin{enumerate}

\item In TGD framework Higgs mechanism is replaced by p-adic thermodynamics. The couplings of Higgs to fermions are by dimensional arguments very naturally gradient couplings with coupling constant, which has dimensions of inverse mass. This dimensional coupling is same for all fermions so that naturalness is achieved.

\item Massivation of gauge bosons combines Higgs components and weak gauge bosons to massive particles in unitary gauge but leaves photon massless

apart from small higher order corrections form p-adic thermodynamics.
Unitary gauge is in TGD uniquely fixed by CP_2 geometry. This trivial
observation means that there is no need for Higgs vacuum expectation value
to define the em neutral direction in gauge algebra. Furthermore, the
absence of covariantly constant holomorphic CP_2 vector fields strongly
suggests that Higgs vacuum expectation does not make sense. This does not
exclude the existence of Higgs like particle as the original wrong conclusion was.

\item W/Z mass squared ratio - the source of troubles in p-adic thermodynamics based approach - is expressible in terms of corresponding
gauge coupling strengths g_i^2, $i=W,Z$, if the string tension of the
flux tube connecting the two wormhole contacts assignable to gauge boson is
proportional to g_i^2. This is definitely a new element in the physical
picture and replaces Higgs vacuum energy with the energy of string.

\item p-Adic thermodynamics relying on super-conformal invariance can
describe in its recent form only the contributions of wormhole contacts to
the particle masses. The contributions from \blockquote{long strings} connecting different wormhole contacts cannot be calculated. To
achieve this one must generalize conformal invariance to include two conformal weights: the conformal weight assignable to the conformal weight
for the light-like radial coordinate of light-cone boundary and the spinorial conformal weight assignable to the induced spinor fields at
string world sheets. It seems that also an extension to Yangian algebra
containing poly-local generators with locus defined as partonic 2-surface
is needed: the number of partonic 2-surface would define a quantum number.
p-Adic thermodynamics for the representations of Yangian with states labeled by these three integers could provide the complete description of
the states.

The recent construction of WCW geometry indeed leads to a picture allowing
interpretation in terms of Yangian extension of super-conformal invariance.

The matrix elements of WCW metrix are labelled by two conformal weights
assignable to the light-like radial coordinate of light-cone boundary and
to the coordinate along string defining the boundary of string world sheet
at which fermions are located from the condition that spinor modes have a
well-defined value of em charge.

\end{enumerate}

In this chapter the recent view about Higgs   is described and reader is
saved from the many alternatives that I have considered during last years.