During years I have spent a lot of time and effort in attempts to imagine various options
for the construction of S-matrix - in Zero Energy Ontology (ZEO) M- and U-matrices -
and it seems that there are quite many strong constraints, which might lead to a more or
less unique final result if some young analytically blessed brain decided to transform
these assumptions to concrete calculational recipes.

The realization that\index{WCW} WCW spinors correspond to von Neumann algebras known as
hyper-finite\index{factors of type II_1} factors of type II_1 meant a turning point
also in the attempts to construct S-matrix. A sequence of trials and errors led rapidly
to the generalization of the quantum measurement theory and re-interpretation
of\index{S-matrix} S-matrix elements as entanglement coefficients of zero energy
states in accordance with the ZEO applied already earlier in TGD inspired cosmology. ZEO
motivated the replacement of the term \blockquote{S-matrix} with \blockquote{M-matrix}.

The general mathematical concepts are not enough to get to the level of concrete
scattering amplitudes. The notion of preferred extremal inspiring the notion of
generalized Feynman diagram is central in bringing in this concretia. The very notion of
preferred extremals means that ordinary Feynman diagrams providing a visualization of
path integral are not in question. Generalized Feynman diagrams have 4-D Euclidian
space-time regions (wormhole contacts) as lines, and light-like partonic orbits of
2-surfaces as 3-D lines. String world sheets carrying fermions are also present and have
1-D boundaries at the light-like orbits of partonic 2-surfaces carrying fermion number and
light-like 8-momenta suggesting strongly 8-D generalization of twistor approach.

The resulting objects could be indeed seen as generalizations of twistor diagrams rather
than Feynman diagrams. The preferred extremal property strongly encourages the old and
forgotten TGD inspried idea as sequences of algebraic operations with product and
co-product representing 3-vertices. The sequences connect given states at the opposite
boundaries of CD and have minimal length. The algebraic structure in

question would be the
Yangian of the super-symplectic algebra with generators identified as super-symplectic
charges assignable to strings connecting partonic 2-surfaces.

The purpose of this chapter is to collect to single chapter various general ideas about
the construction of M-matrix and give a brief summary about intuitive picture behind
various matrices. Also a general vision about generalized Feynman diagrams is formulated.
A more detailed construction requires the introduction of generalization of twistor
approach to 8-D context.