The proton's quanta composition

Space lattice defined by Mites

A space lattice defined by Mites has geometric as well as energetic properties. All-space filling requires two A-quanta modules for each B-quanta module. The lattice is characterized by a ground state defined by an all-space filling combination of tetrahedra (24 A-quanta modules) and octahedra (48 A-quanta modules and 48 B-quanta modules). In the lattice's ground state the tetrahedra and the octahedra are connected without interpenetrating B-modules. The lattice might be energized in a number of ways:

- Clusters of positive or negative Mites polarize the lattice
- The internal quanta composition of the rhombic dodecahedron might be altered between open, closed, nucleated and mixed combinations
- The quanta modules of the cuboctahedron might be directed outward or inward
- The parity of the cube might be altered
- The cube might be separated in eight partially overlapping octets
- The tetrahedron might be excited in a number of ways
- Polyhedra might be separated or partially overlapping

Intrinsic spin

Spin is in quantum-geometry an intrinsic property. The interface between two positive or two negative Mites defines the intrinsic spin. Integer spin occurs when the triangle of connection between the two Mites is entirely defined by the Mite's B-modules. Half-integer spin occurs when partial overlap occurs between the Mites two B-modules when the two Mites are connected. Coupled Mites with spin might in turn be coupled to form larger spin modules. Both the A- and the B-quanta modules contribute to the intrinsic spin.

The proton's energetic constituents

The proton is defined as a combined tetrahedron-octahedron denoted quantet. Total quanta volume is 120 divided in 48 B-quanta modules and 72 A-quanta modules. The tetrahedron and the octahedron are connected by an enclosed octet composed of six positive Mites $A^+B^+A^-$. The quantet might also be separated in an outer layer of 60 A-quanta modules, an inner core of 48 B-quanta modules and 12 entrapped A-quanta modules. The enclosed Mites represent the proton's quarks. The Mite might be separated in an A+B+ pair and a single A-module. The A^+B^+ pair represents 2/3 of the Mite's volume while the negative A-module represents 1/3. Since the A^+, B^+ is the mirror image of the A^-, B^- module, the A^+B^+ pair represents positive space (charge) while the A- module represents negative space (charge).

The meta-machine concept

The meta-machine concept states that all types of machines obey the same qualitative operating principles. All machines might be divided in six partially overlapping shells. The meta-machine interaction matrix defines the meta-machine's modus operandi. The meta-machine has an operating range and a load cycle.

The proton's meta-machine interaction matrix

The interaction matrixes describe the energetic fine structure of the proton. The energetic components of the proton are shown in fig. 1.

The proton might be divided into partially overlapping systems defining the proton’s mass, charge and spin:

Proton mass interaction matrix				
Quantet	Outflow		Influx	*Octahedron*
Octahedron	Out-scattering	Interface	In-scattering	*Tetrahedron*
Tetrahedron	Out-leakage	Interface	In-leakage	*Octet*
Octet	Expansion	Transmission	Compression	*Mite*
Mite	Angular dispersion	Isolation	Emission	A^+B^+
A^+B^+	Recombination		Excitation	A^- *(Mass)*

An energy-conserving outer layer of 60 A-quanta modules covers the proton. The octahedron’s 48 B-quanta modules serve as compression members in the proton. The tetrahedron gives a unique contribution to the mass by providing a connection between the proton’s center of mass and the outer layer of A-quanta modules. The octet is energetically connected both to the outer layer of A-quanta modules and the inner core of B-quanta modules. The octet serves as an "shock absorber" between the two. The Mite and the composite quanta modules provide a mixture of compressive and tensile forces.

Proton charge interaction matrix				
Octahedron	Outflow		Influx	*Tetrahedron*
Tetrahedron	Out-scattering	Interface	In-scattering	*Octet*
Octet	Out-leakage	Interface	In-leakage	*Mite*
Mite	Expansion	Transmission	Compression	A^+B^+
A^+B^+	Angular dispersion	Isolation	Emission	A^-
A^-	Recombination		Excitation	*Charge*

The proton’s charge is distributed globally and locally. The octahedron has a positive charge. The octahedron is defined by 42 u, anti-u pairs combined with three u. The tetrahedron’s charge is negative since its interface with the octahedron is defined by six negative A-modules (d-quarks). The central octet might be divided in six u-quarks - three with a "horizontal orientation" and three with a "vertical" orientation. Consequently the quarks charge is distributed among all of the proton’s quanta modules. There’s a local as well as a global charge distribution.

Proton spin interaction matrix				
Tetrahedron	Outflow		Influx	*Octet*
Octet	Out-scattering	Interface	In-scattering	*Mite*
Mite	Out-leakage	Interface	In-leakage	A^+B^+
A^+B^+	Expansion	Transmission	Compression	A^-
A^- *(Mass)*	Angular dispersion	Isolation	Emission	*Charge*
Charge	Recombination		Excitation	*Spin*

The proton's spin is concentrated to the tetrahedon and the enclosed octet. Spin takes place within the octet. Part of the spin leak to the surrounding tetrahedron and the core of B-modules.

The pion

The pion is defined as an octet entrapped within a cube. The neutral pion/octet is defined by three positive and three negative Mites. The orientation of the octet's Mites is either open or closed. Furthermore the open and closed octets partially overlap within the cube. Pions/octets form complex partially overlapping structures within the cube. The cube contains 8 partially overlapping octets. The proton's octet represents an entrapped pion.

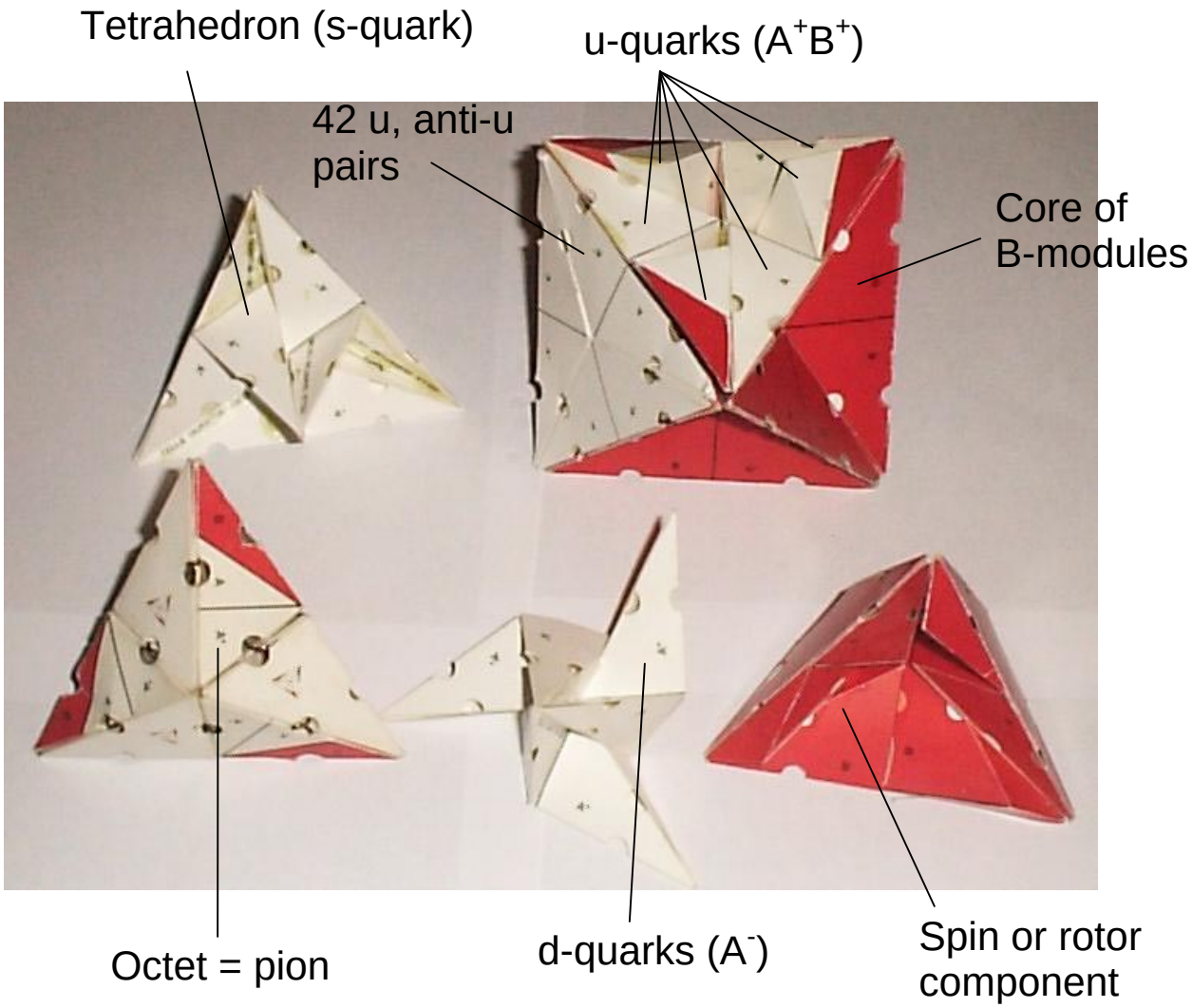

Fig. 1: Energetic fine structure of the proton. Spin is divided among three main components.