

# Microvita Research 1993 to 2013 - Part II

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For the sake of clarification: Microvita vectors are supposed to change frequencies and coherences in the energy-filled void. They cause the vacuum to behave like a differentiated medium with interactions modifying the properties of particles. Thus, the properties of matter cannot be ascribed to the particles alone; they are also determined by interactions with vacuum fluctuations. Matter must always be seen together with its vacuum background, which we consider to be controlled by microvita.

However, in order to control, microvita must be related to some intrinsic values.

In the beginning, we simply added an imaginary time axis. Thus, frequencies could be conceived as real or imaginary. Later, we additionally added imaginary space, allowing vibrations to propagate not only in real, but also in imaginary space-time. Consequently, real properties had to be complemented by imaginary ones. A convenient notation for such movements is provided by the complex  $4 \times 4$  matrix, with  $2 \times 2$  values denoting the position, and  $2 \times 2$  values denoting some key properties (to be extended as required).

In this setting, the sites of particle pair production and annihilation (both bosonic and fermionic) can be modeled as complex  $4 \times 4$  matrices, operating on the  $4 \times 4$  matrices of imaginary ( $\Rightarrow$  production) or real ( $\Rightarrow$  annihilation) particles respectively. The ultimate model for this process is depicted in figure 3.



The model shows 4x4 elements (golden balls on top) acting as a creation operator, transforming particles from the imaginary to the real space; 4x4 elements (golden balls at the bottom) acting as an annihilation operator, transforming real particles (black disc) from real to imaginary space; the core (grey disc), fluctuating around zero, thereby providing and absorbing the energy for/of such virtual particles respectively.

An example for the related matrix-transformations is shown in figure 4:

$$\begin{bmatrix} 0 - it_i & 0 + ix_i & 0 & 0 \\ 0 + iy_i & 0 + iz_i & 0 & 0 \\ 0 & 0 & 0 + ia_i & 0 + ib_i \\ 0 & 0 & 0 + ic_i & 0 + id_i \end{bmatrix} \times \begin{bmatrix} 0 - 2i & 0 & 0 & 0 \\ 0 & 0 - 2i & 0 & 0 \\ 0 & 0 & 0 - i & 0 \\ 0 & 0 & 0 - i & 0 \end{bmatrix} =$$

$$\begin{bmatrix} -2t_i + 0 & 2x_i + 0 & 0 & 0 \\ 2y_i + 0 & 2z_i + 0 & 0 & 0 \\ 0 & 0 & a_i + b_i + 0 & 0 \\ 0 & 0 & c_i + d_i + 0 & 0 \end{bmatrix},$$

and with the 'charge/form factors'

$a_i = r\bar{b}$ ,  $b_i = b\bar{r}$  and  $c_i = +1$ ,  $d_i = -1$  (or vice versa)

$$\begin{bmatrix} -2t_i + 0 & 2x_i + 0 & 0 & 0 \\ 2y_i + 0 & 2z_i + 0 & 0 & 0 \\ 0 & 0 & r\bar{b} + b\bar{r} + 0 & 0 \\ 0 & 0 & +1 - 1 + 0 & 0 \end{bmatrix} =$$

(unstable due to time violation)

$$\begin{bmatrix} -t_i + 0 & x_i + 0 & 0 & 0 \\ y_i + 0 & z_i + 0 & 0 & 0 \\ 0 & 0 & r\bar{b} + 0 & 0 \\ 0 & 0 & +1 + 0 & 0 \end{bmatrix} + \begin{bmatrix} -t_i + 0 & x_i + 0 & 0 & 0 \\ y_i + 0 & z_i + 0 & 0 & 0 \\ 0 & 0 & b\bar{r} + 0 & 0 \\ 0 & 0 & -1 + 0 & 0 \end{bmatrix}.$$

Of course, such an operator can be modified in many ways.

Figure 5 gives an overview on the concept.

Abbrev	Mathematical	Descriptive
0	Zero point	Cosmic nucleus (Purushottama)
$M_I$	imaginary Minkowski space	plenum of all imaginations
$i$	unit vectors of $M_I$	$(-i, 0, 0, 0), (0, i, 0, 0), (0, 0, i, 0), (0, 0, 0, i)$
$E_I$	imaginary Euclidean space	register of all qualia
$i'$	unit vectors of $E_I$	$(i, 0, 0, 0), (0, i, 0, 0), (0, 0, i, 0), (0, 0, 0, i)$
$Q_I$	$M_I \oplus E_I$	set of all ideas
$q_I$	elements of $Q_I$	individual ideas
$M_R$	real Minkowski space	plenum of all real forms of existence
$e$	unit vectors of $M_R$	$(i^2, 0, 0, 0), (0, -i^2, 0, 0), (0, 0, -i^2, 0), (0, 0, 0, -i^2)$
$E_R$	real Euclidean space	register of all characteristics
$e'$	unit vectors of $E_R$	$(-i^2, 0, 0, 0), (0, -i^2, 0, 0), (0, 0, -i^2, 0), (0, 0, 0, -i^2)$
$Q_R$	$M_R \oplus E_R$	set of all matter & energy
$q_R$	elements of $Q_R$	individual particles & quanta of energy
$S_C$	$E_C \oplus E_C$	set of all operators
$s_C$	elements of $S_C$	individual operators
SL	$S_C \otimes Q_R \otimes S_C$	Set of all microvita with their respective core matrices
अ	elements of SL	individual microvita with their respective core matrices

The five classes: Cosmic nucleus (point zero). Set of all concepts and ideas ( $Q_I = M_I \oplus E_I$ ). Set of all matter and energy ( $Q_R = M_R \oplus E_R$ ). Set of all operators ( $S_C = E_C \oplus E_C$ ). Set of all microvita with their respective core matrices ( $SL = S_C \otimes Q_R \otimes S_C$ ), situated at the boundary between the abstract ( $S_C$ ), the imaginary ( $Q_I$ ) and the real world ( $Q_R$ ).

(<sub>C</sub> complex                      <sub>I</sub> imaginary                      <sub>R</sub> real)  
(SL silver line                      अ Anujivat)