RECONSTRUCTION

Of 'Really Amazing Proof' of the Great or Last Theorem of Pier Fermat (1601 –1665).

The are enough reasons to assume that P. Fermat considered the equation:

$$a^n + b^n = c^n \qquad (1)$$

as an infinite system of equations with finite number of variable n a t u r a l numbers (a, b, c, n):

$$\begin{array}{l} a^2 + b^2 = c^2 \\ a^3 + b^3 = c^3 \\ a^4 + b^4 = c^4 \\ \dots\dots\dots\dots \\ \dots\dots\dots\dots \\ a^n + b^n = c^n \end{array} \qquad (2)$$

He knew that the equation (1) at n = 2 came from extreme antiquity. It has geometrical interpretation and is called the equation of Pythagoras (approx. 580 – 500 B.C.):

$$a^2 + b^2 = c^2 \qquad (3)$$

It was also known that among the infinity aggregate of solutions of equation (3) there are such threes

of numbers (a_0, b_0, c_0) that do not have common multipliers.
These threes of
n a t u r a l numbers are known as p r i m i t i v e t h r e e s of Pythagoras. These primitive threes of Pythagoras were also known to be generated by any couple v > u of natural numbers of different parity with the help of three invariant forms:

$$
\left.
\begin{aligned}
a_0 &= v^2 - u^2 \\
b_0 &= 2 \cdot v \cdot u \\
c_0 &= v^2 + u^2
\end{aligned}
\right| \qquad (4)
$$

The further line of argument is obvious.

Four variable natural numbers (a_o, b_0, c_0, n) are building three linear forms:

$$
\left.
\begin{aligned}
a_0^n &= a_0^2 \cdot a_0^{n-2} = (v^2 - u^2)^2 \cdot (v^2 - u^2)^{n-2} \\
b_0^n &= b_0^2 \cdot b_0^{n-2} = (2 \cdot v \cdot u)^2 \cdot (2 \cdot v \cdot u)^{n-2} \\
c_0^n &= c_0^2 \cdot c_0^{n-2} = (v^2 + u^2)^2 \cdot (v^2 + u^2)^{n-2}
\end{aligned}
\right| \qquad (5)
$$

forming the equation, which makes sense only at n = 2:

$$a_0^2 \cdot a_0^{n-2} + b_0^2 \cdot b_0^{n-2} = c_0^2 \cdot c_0^{n-2} \qquad (6)$$

For all other n > 2 form (6) makes sense of inequality

$$a_0^2 \cdot a_0^{n-2} + b_0^2 \cdot b_0^{n-2} \neq c_0^2 \cdot c_0^{n-2} \qquad (7)$$

Inequality (7) can be written down in the following for

$$a_0^2 \cdot (\frac{a_0}{c_0})^{n-2} + b_0^2 \cdot (\frac{b_0}{c_0})^{n-2} \neq c_0^2 \qquad (8)$$

Inequality (8) is turning into equality

with the help of corrective multiplier $\varphi^{\grave{o}-2}$ **:**

$$a_0^2 \cdot (\frac{a_0}{c_0})^{n-2} + b_0^2 \cdot (\frac{b_0}{c_0})^{n-2} = c_0^2 \cdot \varphi^{n-2} \qquad (9)$$

An i n v a r i a n t form of multiplier φn-2 follows from equality (9)
and is computable for
any couples v > u
of natural numbers of different parity:

$$\varphi^{n-2} = \frac{a_0^2 \cdot (\frac{a_0}{c_0})^{n-2} + b_0^2 \cdot (\frac{b_0}{c_0})^{n-2}}{c_0^2} \qquad (10)$$

As a result we acquire equivalent of equation (1)
computable for all n ≥ 2:

$$a_*^n + b_*^n = c_*^n \qquad (11)$$

in which:

$$a_*^n = a_0^2 \cdot (\frac{a_0}{c_0})^{n-2}$$

$$b_*^n = b_0^2 \cdot (\frac{b_0}{c_0})^{n-2} \qquad (12)$$

$$c_*^n = c_0^2 \cdot \varphi^{n-2}$$

Formulas for calculation of primitive threes (a*, b*, c*)
of Fermat – Deophant follow from (12) :

$$a_* = \sqrt[n]{a_0^2 \cdot (\frac{a_0}{c_0})^{n-2}}$$
$$b_* = \sqrt[n]{b_0^2 \cdot (\frac{b_0}{c_0})^{n-2}} \qquad (13)$$
$$c_* = \sqrt[n]{c_0^2 \cdot \varphi^{n-2}}$$

Entry into the infinity aggregate
of not primitive threes is carried out by the means
of multiplication of primitive threes by any common multiplier:

$$a = a_* \cdot S$$
$$b = b_* \cdot S \qquad (14)$$
$$c = c_* \cdot S$$

Thus according to (4) the following correlations always exist:

$$(\frac{a_0}{c_0} \prec 1) \quad \text{and} \quad (\frac{b_0}{c_0} \prec 1) \qquad (15)$$

by virtue of which:

FOR ALL n > 2 MULTIPLIER of proportionality ,
CALCULATED WITH THE HELP OF INVARIANT FORM (10),
PRIMITIVE THREES OF FERMAT-DEOPHANT,
CALCULATED WITH THE HELP OF INVARIANT FORMS (13),
CANNOT BE WHOLE NUMBERS.

CONCLUSION

THE RECORD MADE BY PIER FERMAT ON NERROW MARGINE OF ARITHMETIC OF DIOPHANT IS CORRECT. there can be no doubt about IT DESPITE THE OPPINION PREVALENT IN WORKS OF theory of number SPECIALISTS.

In summary I'd like to point out the following.
My work 'About some mistaken statement in theory of number and completeness of the final solution of Fermat's theorem' is published in collection of scientific works of the State University of Tula in 1995 on pages 130-137.
In this work attention of readers is drawn to the following property of formulas for calculation infinity aggregates of primitive threes (a*, b*, c*) of Fermat – Deophant:

ALL FORMULAS CONTAIN SQUARES OF PRIMITIVE THREES OF PYTHAGORAS (a_0^2, b_0^2, c_0^2).

AND REGARDLESS OF THE constant of proportionality THESE SQUARES ARE MULTIPIED BY, ROOTS WITH DEGREES n > 2 will always be irrational.

The numbers φ^{n-2} **generated by the form (10).**
Could be used as constants of proportionality.
But there could be any natural numbers N = 1, 2, 3, 4. …
But there may be also an appropriate combination of primitive threes of Pythagoras:

$$D_n = \frac{1}{3} \cdot (a_0^{n-2} + b_0^{n-2} + c_0^{n-2}) \qquad (16)$$

described in the book 'Finale of the Centuries-old Enigma of Diophant and Fermat'.

This phenomenon of primitive threes of Pythagoras owes it's existence to two properties of numbers (a_0, b_o, c_o) **:**

1. Threes (a_0, b_o, c_0) don't have common multipliers

2. Each of these numbers may be factorized into prime factors only in one way.

Physical basis
of the great or last theorem of pier fermat

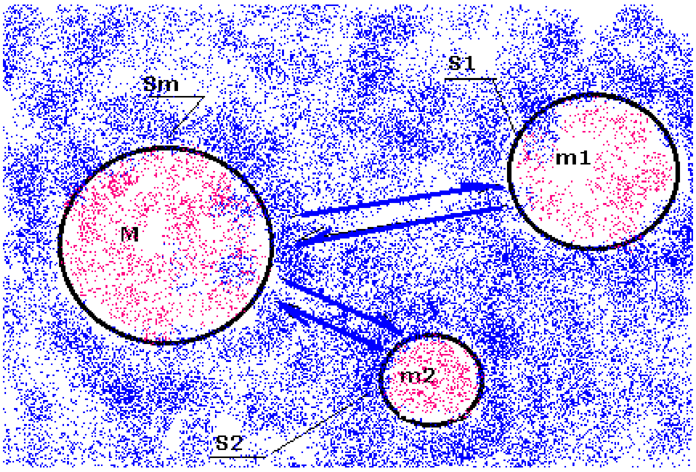
The Great or Last Theorem of Pier Fermat has direct couplings and feedbacks in the physical picture of the universe. These connections are based on the following natural phenomenon:

THE MASS OF ALL PHYSICAL BODIES IS ENCLOSED IN three-dimensional OR N-DIMENTIONAL VOLUME. BUT CRITICAL VALUE OF MASS IS normalized BY TWO-DIMENTIONAL SQUARE OF ITS SERFACE.

Simple examples.

1. The mass of live organisms depends on the square of the surface of their bodies, lungs and vessels. Via these squares live organisms are receiving nutrition from the habitat.
2. The mass of plants also depends on the square of the surface of the roots, trunk, branches and leaves. Via these surfaces plants are receiving nutrition from their habitat.
3. The mass of atomic nucleuses is normalized by t w o-d i m e n t i o n a l square of their spherical surface. Via this surface atom exchanges energy-mass with the external thermostat (universe).

Owing to this phenomenon there is direct relation between masses of atomic nucleuses and the defects of their spherical surfaces, which is the topological property of spherical bodies. The following picture will help understanding of this property:



THE SQUARE SM OF THE SPHERICAL SERFACE OF THE MASS M IS ALWAYS LESS THEN THE SUM (S1 + S2) OF SQUARES OF TWO SPHERICAL SERFACES OF TWO MASSES m1 + m2 = M.

Defects of the squares is sequent from this topological property of spherical bodies:

$$+\Delta S = (S1 + S2) - SM$$
$$-\Delta S = SM - (S1 + S2)$$

By the defects of squares Nature is associating defects of energy-mass of fission and fusion atomic nucleuses.
For convincingness I'm enclosing the copy of my patent RF № 2145742 based on the natural phenomenon described here.

CONCLUSION

Only t w o-d i m e n s i o n a l surface the square of which can be measured by t w o-d i m e n s i o n a l squares has rational, i.e. natural number representation.
This property of two-dimensional surfaces is reflected in the equation of Pythagoras:

$$a^2 + b^2 = c^2$$

that has well-known geometrical interpretation.
This very property presents in well-known
equation of A. Einstein in the form
of Gaussian curvature of t w o-d i m e n s i o n a l spherical surface.
Measuring the square of the surface with help
on three-dimensional cubes or n-dimensional bodies is u n n a t u r a l

.

An attempt of such measurement leads into the irrational sphere.

This very property of the real world
is demonstrated by Pier Fermat
in his Great or Last Theorem.

V.S.Yarosh
E-mail: vs.yarosh@mtu-net.ru

121354 , Москва,
Можайское шоссе, 39, кв.306,
Всеволод Сергеевич Ярош
Тел. 444-00-94

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