For the origin of new geometry

S. Kalimuthu

2/394, Kanjampatti P.O., Pollachi Via, Tamil Nadu 642003, India

Email : kriyababaji@hotmail.com

Abstract

In the nineteenth century, Beltrami, Cayley, Klein, Poincaré and others showed the independency of the parallel postulate in Euclidean geometry. In quantum mechanics, some times the electron is a particle and at other times it is a wave. According to general relativity theory predictions, black holes will not decay and split but quantum physics says that the black hole will decay and split. These are approved and accepted results. Similarly, in this work, the author obtained a consistent result for the origin and development of new geometry.

Keywords:

Euclid
Elements
Postulates
Triangles
Non-Euclidean geometries

MSC: 51 M15

1. Construction

In a sphere, the quadrature formed by the great circles, all the three interior angles are right angles. Let in Fig. 1, ABC is the big spherical triangle of sphere S and in Fig. 2, DEF is the small spherical triangle of sphere S'. Needless to say, these triangles are similar. With radius A, center DE describe an arc cutting AB at H. Draw another arc [A, DF] passing through J on AC. Join H and J.

2. Results

By SAS correspondence, triangles DEF and AHJ are congruent. So, the base angles of triangle AHJ are right angles. Consequently we get that in spherical quadrilateral HJCB, the summit angles are right angles

(1)

By construction, the base angles of quadrilateral HJCB are right angles. From this we have that in quadrilateral, HJCB, each interior angle is a right angle. This establishes the fifth Euclidean postulate [1□8].

(2)

In triangle ABC, the lateral sides are equal. i.e. AB and AC are equal. By our construction AH and AJ are equal.

So, we get that in quadrilateral HBJC, sides HB and JC are equal. (3)

By joining H and C we will get two spherical right angled triangles HBC and HJC.

By leg hypotenuse correspondence , these two triangles are congruent. (4)

From (4) we obtain that in triangles HBC and HJC sides HJ and BC are equal. (5)

But by construction , HJ is equal to EF which is smaller than BC. (6)

So, comparing (5) and (6) we get a contradiction. (7)

3. Discussion

Our constructions and proofs are consistent. We have not introduced any new hypothesis in this work. So, the author's findings are consistent. As we have already mentioned Eq. (2) deduces the parallel postulate of the Euclidean geometry. But we have pointed out in the abstract that the fifth Euclidean postulate problem is one of the most famous mathematical impossibilities. So, although our finding is consistent, it poses a very serious question about the foundations of geometry. Secondly from Eqs. (5)□(7) we have obtained a challenging result, namely the smaller side of triangle AHJ is equal to the larger side BC of triangle ABC. This is a problematic problem. The other side of the inequality compels us that by leg hypotenuse correspondence two right angled triangles need not be identical. So, these two critical and curious issues convey that there is a hidden mathematical truth. Further studies will certainly unlock this mathematical mystery.

Physics is an area of science where many branches of mathematics have been directly applied. Nature seems to obey `mathematical rules' rather than acting whimsically. In other words, it seems that natural laws can be expressed in terms of mathematics. For a physicist, mathematics is a toolbox. Before attacking a particular problem, you should have the necessary tools for the job. There are some tools that should be in any physicist's toolbox, but as they specialize, they will add extra tools needed for the specific problems at hand. Each new development in physics often requires a new branch of mathematics. The language of physics is mathematics but physics is applied mathematics. The following connections have been widely agreed: Classical mechanics □ Calculus and geometry, Electromagnetism □ Vector calculus, General relativity □

Spherical geometry, differential geometry and differential equations, Quantum field theory Matrices, group theory, differential equations and probability, Superstring theory Knot theory. There are many challenging and unsolved physical problems such as quantum gravity, understanding the nucleus, fusion energy, climate change, turbulence, glassy materials, high-temperature superconductivity, solar magnetism, complexity, gravitational waves and their detection, neutron stars and pulsars. Supernova stars, black holes, cosmic strings, quasars and galactic nuclei. Formation of galaxies, the problem of dark matter hidden mass and its detection, the origin of super high-energy cosmic rays, gamma-ray bursts. In order to solve and to know the ultimate reality of Nature, the creation of new mathematical fields are needed. Further probes of our negative but consistent results may explore new fields of mathematics.

Let us recall the following famous quotations:

``The first test of potential in mathematics is whether you can get anything out of geometry". Quoted in D McHale, Conic Sections (Dublin 1993).

``The significant problems we face cannot be solved at the same level of thinking we were at when we created them". - Einstein.

``If you have not enjoyed Euclid in your youth, you are probably not made for a scientific career" Einstein.

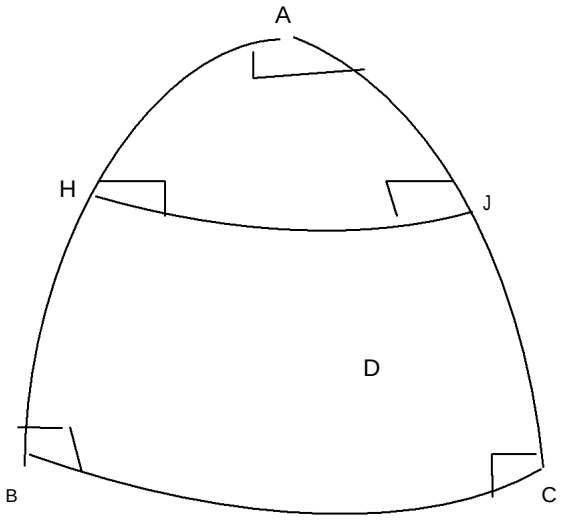

Fig. 1. Spherical.

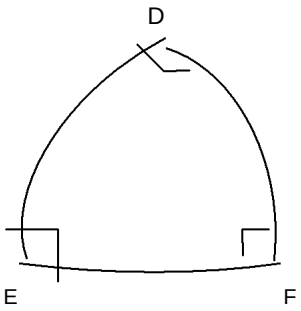

Fig. 2. Spherical.

References

[1] Kalimuthu, S (2009 a) Pretty algebra , Nature and Science, Marshland Press, New York, 7 (6), pp 86 – 89
http://www.sciencepub.net/nature/0706/12_0822_HANDSOMEHANDSOME_ns0706.pdf

[2] Kalimuthu, S (2009 b) Beautiful geometry , Nature and Science, Marshland Press, New York, 7 (7), pp 88 – 89
http://www.sciencepub.net/nature/0707/13_0874_kalimuthu_ns0707.pdf

[3] Kalimuthu , S (2009d) On applied algebra , Advances in algebra , RIPublication,Vol.2,No.1,pp 39-41
www.ripublication.com/aav2nl_6.pdf-

[4] Kalimuthu, S (2010e) A new concept for engineering trials ,Millennium Relativity , USA

http://www.mrelativity.net/Papers/40/TrialsEngineering.pdf

[5] Kalimuthu, S { 2012 a) For quantum space geometry, General science Journal

http://gsjournal.net/Science-Journals/Research%20Papers-Relativity%20Theory/Download/4242

[6] Kalimuthu , S (2012 b) On a new non Euclidean concept, General Science Journal

http://gsjournal.net/Science-Journals/Research%20Papers-Mathematical%20Physics/Download/4243

[7] Kalimuthu, S Pretty set Theory , General Science Journal

http://gsjournal.net/Science-Journals/Essays/View/1984

[8] Kalimuthu,S (2012d) , Surprises in spherical geometry, General Science Journal

http://gsjournal.net/Science-Journals/Essays-Mathematical%20Physics/Download/4261

[9] Kalimuthu,S (2012e) , On Gödel and Miles Mathis , General Science Journal

http://gsjournal.net/Science-Journals/Essays-Miscellaneous/Download/4276

[10] Kalimuthu,S (2012f) , On the foundations of new geometry, General Science Journal

http://gsjournal.net/Science-Journals/Essays-Miscellaneous/Download/4315

[11] Kalimuthu,S & Sivasubramanian,M , On the new branch of mathematical science, J. Math. Stat., 4: 122-123.

DOI:10.3844/jmssp.2008.122.123
URL: http://thescipub.com/abstract/10.3844/jmssp.2008.122.123

[12] Kalimuthu,S et all On the new branch of mathematical science Part 2, J. Math. Stat., 4: 148-149.

DOI:10.3844/jmssp.2008.148.149
URL: http://thescipub.com/abstract/10.3844/jmssp.2008.148.149