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Mini Review

Revisiting the Author's Topological Experiment

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Abstract

In 2014, the author has posted an article [5] to ViXra pre print archive. It is well known that this similar posting to arXiv. In Euclidean geometry, the sum of the interior angles of a triangle is 180 degrees. But in hyperbolic space it is less than 180 degrees and in elliptical/spherical geometry it is more than 180 degrees. The non Euclidean geometries are being widely applied in physics, quantum mechanics and cosmology. Keeping this view in mind, the author attempts to show experimentally that a straight line and a circle are similar. But it is not real in pure topology. The research community may find a clue in this work for further development in robotics engineering and applications.

Keywords: Rubber Band Experiment; A New Topology; Engineering Applications

Experiment

Topology is the study of how spaces are organized, how the objects are structured in terms of position. It also studies how spaces are connected. Topology has sometimes been called rubber- sheet geometry, because in topology of 2 dimensions, there is no difference between a circle and a square (a circle made out of a rubber band can be stretched into a square). Choose a thin elastic rubber sheet. Describe an ellipse on it (Figure 1). Go on stretching as long as possible (Figure 2). In figure the stretched ellipse of figure 1 more or less becomes equal to a line segment. If we prolong the stretching process, the ellipse of figure 1 will become a line segment (Figure 3).

So, we have topologically deformed a circle in to an ellipse and an ellipse in to a straight line. Here an abstract idea appears that if we contract a line segment, it may become an ellipse and a circle. Further studies to be devoted in this topic may explore new results. In the above conducted experiment, we have not violated the topological stretching rule [1-5]. So, logically our experiment is consistent.

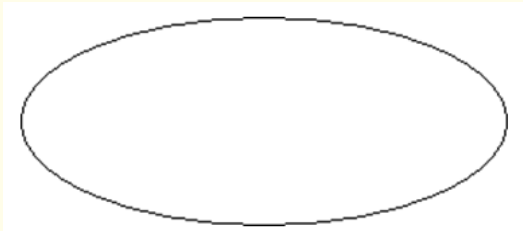

Figure 1

Figure 2

Figure 3

Conclusion

Differential equations are the heart of science and technology. Most of the mathematical formulation of physical phenomena are in non-linear. If we formulate differential equations for our topological experiment, it will be in non-linear. This may have immediate physical and engineering applications [1-5].

Bibliography

1. K Janice. Topology. Springer (1984).
2. MA Armstrong. Basic Topology. Springer (1983).
3. J Dugundji. Topology. Boston: Allyn and Bacon (1966)
4. Stephen Barr. Experiments in Topology, Dover Publications (1999).
5. S Kalimuthu. On an Experimental Topology, viXra:1402.0155 (2014).