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ПРОБЛЕМЫ СОВРЕМЕННОЙ ТОПОЛОГИИ И ЕЕ
ПРИЛОЖЕНИЯ**

**ABSTRACTS
OF THE INTERNATIONAL CONFERENCE
PROBLEMS OF MODERN
TOPOLOGY AND APPICATIONS**

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TOPOLOGY OF MINKOWSKI METRIC

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As known, $ds^2 = dx_1^2 + dx_2^2 + \dots + dx_n^2 - dt^2$ metric space referred to Minkowski space. In addition, metric is also called Minkowski metric[1]. If we take advantage of vector $X \{x_1, x_2, \dots, x_n\}$ notation than $ds^2 = dX^2 - dt^2$ becomes Minkowski plane. In this plane the distance between the points $A \{x_1, y_1\}$ and $B \{x_2, y_2\}$ is defined by the equation $d = \sqrt{(x_2 - x_1)^2 - (y_2 - y_1)^2}$. The distance has real, zero and abstract magnitudes. In order to take full advantage of this distance in the plane, we use the absolute value of the following square root expression, so $\varepsilon = \sqrt{|(x_2 - x_1)^2 - (y_2 - y_1)^2|}$.

Definition: In Minkowski plane, ε surrounding of the point (x_0, y_0) is said to be satisfied points of the inequality $\sqrt{|(x - x_0)^2 - (y - y_0)^2|} < \varepsilon$. If let ε in than distance has the following properties.

$$1) d(A, B) \geq 0$$

$$2) d(A, B) = d(B, A)$$

$$3) d(A, B) \geq d(A, C) + d(C, B)$$

So, in proportion to this distance, plane metric can't be metric space.

Theorem: Minkowski plane isn't Hausdorff plane.

In order to define geometric meaning of the idea of surrounding point for $\{x, y, z\}$ space in Minkowski plane,

$$z = \sqrt{|x^2 - y^2|} \quad (1)$$

we look at covering graph.

Surrounding point is the projection of the line in xoy plane which is got $z = \varepsilon$ plane (1) and covering intersection. Geometric meaning of distance is the interval between (1) covering section $z = \text{const}$ plane and xoy plane.

References

- [1] A.E. El-Ahmady, E.AlHesiny. "The Topological Folding of the Huperbola in Minkowski" 3-space. International Jorنال of Nonlinear Science Vol. II (2011) №4. Pp.451-458.