FORMULATION OF THE PROBLEM GEOMETRIC MODELING ANALYTICAL SOLUTIONS OF SYNTHETIC GEOMETRY BY MEANS BN –CALCULUS

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Summary. **It is considered in work the analysis of problems of synthetic geometry for the purpose of their subsequent analytical decision by means of BN-calculation.**

Keywords: **synthetic geometry, problems of synthetic geometry, pointed calculation of Balyuby Naydysh.**

Formulation of the problem. Systematization and generalization of computing fundamentals of synthetic geometry and their subsequent computer realization demand the solution of the considerable list of questions of theoretical and applied character. The essence of synthetic geometry is shown through its algorithmic, constructive component. Research of internal structure of algorithms, their accuracy and speed allows to find rational transition from synthetic receiving and the description of a geometrical form to its analytical (algorithmic) representation. Also important problem is need of visual representation of objects of synthetic geometry with possibility of interactive modeling. However the fundamentals of synthetic geometry are made by geometrical algorithms which in a general view aren't expressed analytically and therefore it is impossible to construct computing model of a task in general that is quite important applied problem.

Analysis of recent research. Questions of development of geometrical modeling by means of synthetic geometry paid attention a significant amount of scientists. Among domestic the scientific significant contribution to the solution of problems of synthetic geometry was made Nesvidomin V. [1] and Obukhovo V. [2]. Synthetic methods are used in many sections of geometry and the adjacent scientific directions. Graphic constructions are widely used in various geometrical devices. Often address to geometrical models when modeling various processes and the phenomena – distribution of temperature, deformation, loadings and many applied questions that confirms their considerable distribution and prospect of further development.

Essential advantages of methods of synthetic geometry are as follows:

- formation of concepts at synthetic approach has constructive

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character, there is an opportunity to present an image of this concept, unlike analytical approach where the majority of definitions have abstract character;

- the mutual provision of geometrical images in space is considered;
- sequence, logicality and presentation of process of modeling;

In this plan, the type of geometrical part of determinant of variety, convenience of management of the provision of its components, their evident display is one of the important directions of research for creation of modern interactive dialogue in computer technologies of geometrical modeling.

However use synthetic geometry has a number of the following shortcomings [1]:

- big labor input of performance of graphic constructions by means of drawing tools;
- low accuracy of geometrical constructions;
- impossibility of removal of the analytical equations of geometrical varieties on its synthetic to parameters that significantly complicates its construction;
- high complexity of program realization;
- complexity (impossibility) of visual representation of multiple parameter processes and phenomena;

The fundamentals of synthetic geometry are made by iterative geometrical algorithms of crossings and associations of geometrical images which, generally, aren't expressed in the analytical equations therefore it is impossible to construct computing mathematical model in general.

Formulation of article purposes. To create the list of requirements to new approach of geometrical modeling of the analytical solution of problems of synthetic geometry, on the basis of critical analytics of known methods of synthetic geometry.

Main part. Considering the shortcomings of synthetic geometry given above it is possible to create requirements to new approach of geometrical modeling of the analytical solution of problems of synthetic geometry, namely:

- minimization of an error of approach;
- a community of approach of geometrical modeling for various varieties;
- solutions of problems of discrete geometrical modeling in synthetic geometry;
- possibility of carrying out analysis, determination of metric and differential properties of dot ranks;
- variability of the solution of discrete geometrical modeling;
- simplicity and interconsistency of program realization.

Considering the above requirements, is pertinent, in our opinion, to

use the BN-calculation device when developing new approach as the device of BN-calculation possesses the following number of features, namely [4]:

- having discrete basic data on an entrance, we can receive result in a discrete form;

- in ways of BN-calculation the invariant of the simple relation of three points is initially put;

- the device of BN-calculation has possibility of synthesis of the received decisions for spaces of bigger regularity;

- efficiency of program realization of algorithms and ways.

On the basis of the above it is possible to formulate problems of future research:

- to develop the formalized computing and geometrical approach for geometrical modeling of discretely presented varieties means of BN-calculation;

- to develop ways of the analysis and determination of metric and differential properties of the modelled geometrical images;

- to carry out the comparative analysis of the developed ways of geometrical modeling of varieties of synthetic geometry means of BN-calculation;

- to develop program realization of the offered approaches;

- to carry out introductions of researches to production and to scientific and pedagogical activity.

Conclusions. In article the analysis of characteristics of synthetic geometry that allowed to reveal its merits and demerits was carried out. The analysis of the device of BN-calculation, as main tool is made when developing new approach of geometrical modeling of the analytical solution of problems of synthetic geometry. It allowed to create tasks research.

In the long term the offered approach will allow to simplify use of synthetic geometry in applied tasks for modeling of various processes and the phenomena – distributions of temperature, deformation, etc.

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