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DEVELOPMENT OF FORM GRAPHICS OF INFO-HYPERCUBE USING PROTOCUBE-DESIGNER METHOD

The authors state the main aspects of innovative construction of form graphics of the structural geometric model of the Informative Hypercube produced using the universal Protocube-Designer method. The process of construction of the Info-Hypercube model is based on a well-known geometric transformation (motion) technique, i.e. spatial displacement of two components of the initial cubic model represented by a pair of trihedrons, which complies with a well-known phenomenon of geometric componenthood (PGC). The use of the Protocube-Designer is used to construct the Info-Hypercube model form graphics stage by stage, on the basis of which the internal structure of the Info-Hypercube is formed. The method of Protocube-Designer makes it possible to reduce the cube model into a plane octagonal structure for the production of the pr-matrix lattice. Then, the required transformation of the plane structure with a pr-matrix into a spatial cubic model is performed. Thus, the aforesaid pr-matrix is used here as a structural unit for the production of a form graphics space lattice. The final fill-in of the whole internal structure of the Info-Hypercube is performed through completion of six additional intersecting planes (plates) passing through the central Infocube in accordance with a typical one-side form graphics obtained earlier. The total number of planes in the internal Info-Hypercube structure will be equal to 18 (6 planes restricting the cubic form and 12 planes intersecting inside the model). As a result of this visual graphic construction, a rational formalized geometric Info-Hypercube model is obtained. This model represents an informative form graphics structure. The model is used in different fields, including constructive geometry, shaping of structural design elements as well as design of modern buildings and engineering structures.

Key words: form graphics, Protocube-Designer method, trihedron, informative form-graphics object, pr-matrix, Info-Hypercube.

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