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# Reduction methods of recovering a certain class of hypergraphs

© A.A. Gurchenkov<sup>1</sup>, D.S. Kostyanoi<sup>2</sup>, A.V. Mokryakov<sup>2</sup>

<sup>1</sup>Bauman Moscow State Technical University, Moscow, 105005, Russia

<sup>2</sup>MATI — Tsiolkovsky Russian State Aviation Technological University, Moscow, 121552, Russia

*The main purpose of the article is to study methods for obtaining some classes of hypergraphs from a given vector. For each class we present an algorithm of constructing hypergraph of this class from an arbitrary vector. If the hypergraph construction is impossible, the algorithm determines how much the vector should be diminished in order to allow it. In planar graphs an arc is drawn between two points. If dimension of space is increased by one unit, a plane is drawn through three points and hyperarc is a triangle. A priori we take four classes of hypergraphs. In the first case there are no hyperedges, and all of them have the same dimension. In the second case hyperedges may have different dimensionality, in other words, nodes can be incident to triangles and arcs. In the third case multiple hyperarcs are considered. In the fourth case hyperedges of different dimensions of the spaces are possible, by analogy with the second case.*

**Keywords:** hypergraphs, realizability of vector into graph,  $k$ -complexes.

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**Gurchenkov A.A.** (b. 1939), Dr. Sci. (Phys.&Math.), Professor of the Higher Mathematics Department of Bauman Moscow State Technical University. He is the author of about 130 publications in the field of applied mathematics and mechanics, including 8 monographs. Scientific interests in modelling and control of fluid-containing rotating rigid bodies. e-mail: challenge2005@mail.ru

**Kostianoi D.S.** (b. 1992), a student of the Applied Mathematics and Information Technologies Department at MATI — Tsiolkovsky Russian State Aviation Technology University. Scientific interests include hypergraphs, topology, optimization on graphs. e-mail: ali.latex@gmail.com

**Mokriakov A.V.** (b. 1982) graduated from MATI — Tsiolkovsky Russian State Aviation Technology University. Ph.D., Assoc. Professor of the Applied Mathematics and Information Technologies Department, at Russian State Aviation Technology University. Scientific interests include hypergraphs, k-complexes, the realizability of the vector in the graph. e-mail: ali.latex@gmail.com

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