1135-VP-958 **Sergei Bezrukov**, **Pavle Bulatovic** and **Nikola Kuzmanovski***, kuzmanovski07@hotmail.com.
New families of edge-isoperimetric graphs. Preliminary report.

We present new infinite families of regular graphs whose all cartesian powers admit nested solutions in the edge-isoperimetric problem. For a given graph the problem is to specify a subgraph of a given order m that has max number I(m) of induced edges among all subgraphs of order m. Our results include as special cases most previously published results in this area. The graphs are specified by delta-sequences of the length given by the number of vertices in the graph. The m-th element of the sequence is d(m)=I(m)-I(m-1). It is known that d(m+1) does not exceed d(m)+1. We emphasize on delta-sequences that have several monotonically increasing segments of the same length, for example, 0,1,2,2,3,4,4,5,6 for a sequence with 3 segments of length 3 each. We show that by ordering the vertices of the n-th cartesian power of our graphs lexicographically, the subgraph induced by any initial segment of this order spans max number of edges. Previously such results were only known for graphs/sequences with just 2 monotonic segments. Based on a special representation of graphs as a union of disjoint cliques we introduce new technique for extending a graph admitting nested solutions in the edge-isoperimetric problem. These results can be applied to the bisection width or wirelength problems. (Received September 17, 2017)