ALGEBRA SEMINAR

The structure of complete intersection graphs

By

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Abstract: We give a necessary and sufficient graph theoretic characterization of complete intersection graphs G, i.e. graphs for which their toric ideals I_G are complete intersections. A graph G is complete intersection if and only if every connected component of G is complete intersection. For a connected complete intersection graph G all of its blocks are bipartite except for at most two. All bipartite blocks are ring graphs. If there is only one non bipartite block then it is either a necklace graph or a strip graph. Necklaces are graphs which are taken from ring graphs by identifying two vertices and strip graphs are graphs taken from ring graphs by identifying two edges in a particular way. In the case that there are two non bipartite blocks the two blocks have to have a special position in the graph, they have to be contiguous. Both have to be of a particular kind of necklaces graphs and they are attached on the graph in a special way. Complete intersection graphs may be planar or not. A complete intersection graph is non planar if and only if all of its blocks are bipartite ring graphs except exactly one which belongs to a special class of strip graphs, called M\"obius strip graphs.

Date: 22 December 2020
Time: 13:30 – 14:20
Place: ZOOM. To request the event link, please send a message to
sezer@fen.bilkent.edu.tr