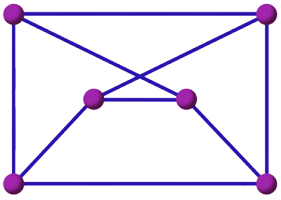

SEMINARIUM
MATEMATYKA DYSKRETNA

wtorek, 24 stycznia 2023 r., godz. 12:30, s. 304 A3-A4

Independence complexes of cyclic graphs and surfaces

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Given a simple nite graph $G = (V, E)$, the independence complex $IC(G)$ of G is dened as the pair (V, F) where F is the set of all independent subsets of vertices in G. Combinatorially, $IC(G)$ can be treated as a hypergraph associated with the graph G. Topologically, $IC(G)$ is an abstract simplicial complex whose geometric realization is a compact polyhedron. In the literature, the independence complexes $IC(G)$ were studied for several classes of graphs from combinatorial and geometrical points of view. These involve Mycielski graphs, claw free graphs, chordal graphs and the others.

Given a cirle C with a nite set of chords R, the circle graph G is defined to be the intersection graph of chords on C. The topological properties of independence complexes of circle graphs have been studied by J.Przytycki and M.Silvero with respect to some computational problems in knot theory.

In this talk, we will focus on the following two problems;

1) the problem of realization of independence complexes for circle graphs;
2) the topological properties of independence complexes realized as triangulations of surfaces of small genus.