I M B M istanbul matematiksel bilimler merkezi
istanbul center for mathematical sciences

WORKSHOP ON GRAPH THEORY
AND ITS APPLICATIONS - IX

Date : November 1-2, 2019
Place: IMBM Seminar Room, Boğaziçi University South Campus
Participation is free, please register on our web page
`https://bilmuh.gtu.edu.tr/~dgozupek/wgt2019/`

PROGRAM

November 1, 2019, Friday
10.00-12.15 (with a coffee break): *On 1-well-covered graphs and unimodality conjectures*
Vadim Levit (Ariel University, Israel)
<u>Abstract:</u>
A graph is *well-covered* if all its maximal independent sets are of the same size (Plummer, 1970).
A well-covered graph is 1-*well-covered* if the deletion of any one vertex leaves a graph, which is
well-covered as well (Staples, 1975).
A graph G belongs to class $\mathbf{W}_n$ if every n pairwise disjoint independent sets in G are included
in n pairwise disjoint maximum independent sets (Staples, 1975). Clearly, $\mathbf{W}_1$ is the family of all
well-covered graphs. It turns out that $G \in \mathbf{W_2}$ if and only if it is a 1-well-covered graph without
isolated vertices.
We show that deleting a shedding vertex does not change the maximum size of a maximal independent set including a given independent set. Specifically, for well-covered graphs, it means
that the vertex v is shedding if and only if $G - v$ is well-covered. In addition, we provide new
characterizations of 1-well-covered graphs and study unimodality properties of their independence
polynomials.
14.00-17.00: Contributed talks

November 2, 2019, Saturday
10.00-12.15 (with a coffee break): *On the generalised colouring numbers*
Sebastian Siebertz (University of Bremen, Germany)
<u>Abstract:</u>
The generalised colouring numbers wcol_r, col_r, and adm_r were introduced by Kierstead and Yang,
and by Dvořák as generalisations of the usual colouring number of graphs. They have found many
applications in graph theory, and in particular, they play a key role in the theory of bounded
expansion and nowhere dense graphs introduced by Nešetřil and Ossona de Mendez. We overview
combinatorial and algorithmic applications of the generalised colouring numbers, emphasising new
developments in this area.
14.00-17.00: Contributed talks

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