



Univerzitet u Sarajevu
Prirodno-matematički fakultet
ODSJEK ZA MATEMATIKU

Abstract

The class of distance-balanced graphs (that is graphs in which for every pair of adjacent vertices u and v the number of vertices closer to u than to v is equal to the number of vertices closer to v than to u) has been studied quite a lot in recent years. Apart from the purely graph-theoretical interest in these graphs the balancedness property makes them important also in areas such as mathematical chemistry and communication networks. For instance, the investigation of the balancedness property is highly related to the well-studied Wiener index and Szeged index of graphs while on the other hand they serve as very desirable models in various real-life situations related to (communication) networks.

In this talk we present a very natural generalization of the concept of distance-balanced graphs to so-called n -distance-balanced graphs, which were first introduced by Boštjan Frelj in 2014. We discuss some basic properties of n -distance-balanced graphs, give examples of such graphs and present a characterization of such graphs of small diameter. We also discuss the n -distance-balanced property for some well-known families of (cubic) graphs and pose a number of open problems. This is joint work with Štefko Miklavič.

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On n -distance balanced graphs

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