University of Delaware
Discrete Mathematics Seminar

Matchings and edge-connectivity in regular graphs

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Friday, October 30, 2009
Ewing Hall 336 4-5pm

Abstract

The *matching number* of a graph is the maximum size of a matching in it. In a previous work with Doug West, we characterized the graphs having the smallest matching number among connected $(2r+1)$-regular graphs with n vertices; the extremal graphs have cut-edges. In this talk, we prove a lower bound for the matching number of a l-edge-connected k-regular graph with n vertices, for $l \geq 2$ and $k \geq 4$. This implies previous results of Chartrand et. al, Niessen and Randerath, Broere et. al, and Henning and Yeo. We also characterize the graphs achieving equality.