PIMS Distinguished Lecturer

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Title:

Total Domination in Graphs and Transversals in Hypergraphs

March19[th] at 3:30 – 4:30 pm

University of Victoria,
Cornett Building, room A229

Abstract:

The total domination number of a graph G is the minimum cardinality of a set S of vertices so that every vertex of G is adjacent to a vertex in S, while the transversal number of a hypergraph H is the minimum cardinality of a subset of vertices in H that has a nonempty intersection with every edge of H. In this talk, we survey recent results on total domination in graphs. Perhaps much of the recent interest in total domination in graphs arises from the fact that total domination in graphs can be translated to the problem of finding transversals in hypergraphs since the transversal number of the open neighorhood hypergraph of a graph is precisely the total domination number of the graph. We explore this transition from total domination in graphs to transversals in hypergraphs and discuss several recent results on total domination in graphs obtained using transversals in hypergraphs that appear difficult to obtain using purely graph theoretic techniques.

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