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False alarms in fault-tolerant dominating sets in graphs

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Abstract

In this paper we develop the problem of fault-tolerant dominating sets (liar's dominating sets) in graphs, introduced by P.J.Slater in [7]. Namely, new kind of fault – false alarm – is considered. Characterization of such fault-tolerant dominating sets in three different general cases (depending on classification of detectors faults) are presented. The Hamming distance is used as one of the main tools of proofs.

Keywords: liar's dominating set, fault-tolerant dominating set, false alarm, Hamming distance