University of Victoria | Graduate Studies

Notice of the Final Oral Examination
for the Degree of Master of Applied Science

of

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BSc (King Abdulaziz University, 2010)

"An Approach to Defend Against Black Hole Attack in Ad Hoc Networks"

Department of Electrical and Computer Engineering

Monday, September 21, 2015
10:00 A.M.
Engineering Office Wing
Room 230

Supervisory Committee:
Dr. Fayez Gebali, Department of Electrical and Computer Engineering, University of Victoria (Co-Supervisor)
Dr. Issa Traore, Department of Electrical and Computer Engineering, UVic (Co-Supervisor)

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Dr. David Atkinson, Department of Geography, UVic

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Abstract

The flixebility of Mobile Ad hoc networks (MANET) and its characteristics introduce new security risks. One possible attack is the Black Hole attack which received recent attention. In the Black Hole attack, a malicious node uses the routing protocol to declare itself as having the shortest path to the node whose packets it wants to intercept. It is needed to understand this risk with a view to extract preventive and corrective protections against it. We introduce an approach that could stop this attack from happening in such a network by using an algorithm which controls the communications between nodes and let each node becomes identified and authorized in a group of nodes. In this algorithm, stable nodes, which called leaders, are responsible for routing and forwarding packets from source to destination nodes. This research reviews the black hole attack, and, explains the algorithm that helps throughput to be increased as a consequence.