A method to detect connected components in undirected graphs by using the RCM algorithm

M. Rebollo[1], C. Carrascosa[1],
A. Palomares[1], F. Pedroche[2]

[1] *Departament de Sistemes Informàtics i Computació, Universitat Politècnica de València.*
E-mails: mrebollo@dsic.upv.es, carrasco@dsic.upv.es, apalomares@dsic.upv.es.
[2] *Institut de Matemàtica Multidisciplinària, Universitat Politècnica de València.*
E-mail: pedroche@imm.upv.es.

In some aplications involving dynamical networks it is very useful to have a fast method to detect the number of connected components. In this talk we show a practical method to detect components by using the Reverse Cuthill-McKee (RCM) algorithm applied to the Laplacian matrix of the graph. The Laplacian matrix L is defined as $L = D - A$, where A is the adjacency matrix representing the network, and D a diagonal matrix with the degrees of the nodes. We make the computations by using the function *symrcm* of Matlab. Some numerical results are shown.

Acknowledgements: This work is supported by Spanish DGI grant MTM2010-18674, Consolider Ingenio CSD2007-00022, PROMETEO 2008/051, and PAID-06-11-2084.