Numerical continuation scheme for tracing the double bounded homotopy for analysing nonlinear circuits

Vazquez-Leal, H. ; Hemandez-Martinez, L. ; Sarmiento-Reyes, A. ; Castaneda-Sheissa, R. ;
Dept. of Electron., Instituto Nacional de Astrofisica, Opt. y Electron., Puebla, Mexico

This paper appears in: Communications, Circuits and Systems, 2005. Proceedings. 2005 International Conference on
Issue Date : 27-30 May 2005
Volume : 2
Print ISBN: 0-7803-9015-6
INSPEC Accession Number: 8623640
Digital Object Identifier : 10.1109/ICCCAS.2005.1495304
Date of Current Version : 15 August 2005

ABSTRACT

A numerical continuation for tracing the double bounded homotopy (DBH) for obtaining DC solutions of nonlinear circuits is proposed. The double bounded homotopy is used to find multiple DC solutions with the advantage of having a stop criterion which is based on the property of having a double bounded trajectory. The key aspects of the implementation of the numerical continuation are presented in this paper. Besides, in order to trace and apply the stop criterion some blocks of the numerical continuation are modified and explained.

INDEX TERMS

- **INSPEC**
  - **Controlled Indexing**
    nonlinear equations , nonlinear network analysis
  - **Non Controlled Indexing**
    DBH , double bounded homotopy tracing , double bounded trajectory stop criterion , multiple DC circuit solutions , multiple operating point circuits , nonlinear algebraic equations , nonlinear circuit analysis , numerical continuation scheme , path following , path tracking