



SDI Review Form 1.6

PART 1:

Journal Name:	<u>British Journal of Mathematics & Computer Science</u>
Manuscript Number:	MS: 2013_BJMCS_3116
Title of the Manuscript:	A homotopy continuation approach for testing a basic analog circuit.

General guideline for Peer Review process is available in this link:

(<http://www.sciencedomain.org/page.php?id=sdi-general-editorial-policy#Peer-Review-Guideline>)

- This form has total 9 parts. Kindly note that you should use all the parts of this review form.



SDI Review Form 1.6

PART 2: Review Comments

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
<u>Compulsory</u> REVISION comments	1) Homotopy function is not introduced neither defined at all in the paper. Perhaps a section that describes it, needed to justify its use for the analysis of switching circuits (just discussed in Sec 3), would help the understanding . 2) The weakness of the paper is represented by the modelling of the fault. In fact it is obvious that after introducing a new component (Rf) in the circuit, the values of the nodal voltage change as well as the iteration number, the path and so on. The fault circuit is simply a different circuit from the fault-free circuit. And why has been the value of R7 fixed just at 11k-ohm and not at another value? What typology of fault it represent? Can all the faults be represented by a simple resistor or do more complex models need for other faults (for example with L and C components)? Finally, if the paper proposes a simple application, the result are obvious. In my opinion, it would be very interesting if the authors model (from a circuital and/or mathematical point of view) some specific and known defects of switching circuits and analyze them with the proposed approach. Perhaps suggestions can be taken in the following papers: • E. Chiarantoni, T. Politi, S. Vergura, G. Fornarelli, "Applying fixed point homotopy for nonlinear DAEs deriving from switching circuits", Future Generation	Thank you for the comments, really appreciate your careful reviewing. 1) A new section to introduce the homotopy concept has been added. 2) Some text clarifying the value of R7 is included, this is an arbitrary value, just to perform a proof of concept. This failure is a very simplified version of a real failure. In the discussion was added a comment about future research on switching circuits. Specially, failure models of such circuits. While it is obvious that the behaviour of the homotopy paths vary when a failure occurs, this subject was not addressed before and that is the subject of this work. Recent references have been incorporated; this includes the ones requested by the reviewer. 3) In general terms, we tried to improve the overall quality of the paper.



SDI Review Form 1.6

	Computer Systems by Elsevier Science B.V. (ISSN 0167-739X), Vol. 19, Issue 3, April 2003, pp. 431-441. G. Acciani, E. Chiarantoni, G. Fornarelli, S. Vergura, "Transient Analysis of Three-Phase Non-linear Circuits by means of Homotopy Method", IEEE-ISIE'06 – ISIE2006 (ISBN 1-4244-0497-5), July 9-13, 2006, ETS-Downtown Montréal, Canada, pp. 2631-2636. References have to be updated, because only 7/33 are considered in the last 5 years.	
<u>Minor</u> REVISION comments	- Fig. 1 is not well-described: what the axes represent? Why that path and not another one? - The parameter "d" is not well-defined, please report it in Fig. 1. - The parameter "c" is not well-defined and it is not clear why it is fixed to 1 in the example; please clarify it.	- Figure 1 was modified and its caption improved. - Parameter "d" is clearly explained. - A comment is included to explain the reason for the value of "C".
<u>Optional/General</u> comments		