REVIEWER'S EVALUATION REPORT

Date: 07 September 2012

Title of Research Paper: THE FINITE ELEMENT ANALYSIS OF CRACKED MEMBERS INNOVATIVE WEAK FORM EQUATIONS

Manuscript ID: NED-JR-011.R1-2012

Does the Manuscript comply with the formatting requirements as given in the Guidelines to Authors?
No

On a Scale of 1-3, with 3 being the best, please rate all of the following questions carefully. The manuscript will be accepted or declined on the basis of your rating.

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After a close examination of the contents of above paper, I have come to the following considered opinion that the manuscript is Average

Final Recommendation:
Revise and resubmit

Reviewer's technical comments are noted below

File: Techmical Comments

Reviewer's comments to the Editor are noted below

Would you be willing to review a revision of this manuscript?
Yes
Technical Comments:

It is noted that the present work have an original point of view of the analyzed problematic. But it is needed to improve the explanations of the research to be easier to follow the proposed methodology.

In general, still there are developments that are difficult to understand. Step by step explanations should be included (it is not necessary to include more equations). For example:

In page 6, the development achieve to Eq. (17). Then, there are new proposals: Eq. (18) and Eq. (19), and because of that, it is obtained Eq.(22). To explain this, the following text should be used:

"Introducing (18) and (19) in Eqs.(17), and considering (20) and (21), it is obtained Eqs.(22)." or similar text.

I am trying to explain that there is a lack of equation map or steps in the text. Some suggested tests are:

Instead of: "Multiply both sides by () to obtain" use "Multiplying (20) by () it is obtained eq. (21)" or similar (Page 7).

Specific comments:

Abstract:

I suggest to eliminate the sentence: "The process of transforming the proposed governing equation to the weak form equation by the conventional method of weighted residual failed."

Change the sentence: "Through analysis of typical examples the accuracy, efficiency and robustness of the work is verified" to "A beam with classical boundary condition (or specify which) to verify the accuracy, efficiency and robustness of the proposed method is analyzed." or similar text.

As symbols and abbreviations are used, I suggest the inclusion of a table of symbols and abbreviations with their meaning, at the end of the work (GE, CFS, SF, WF, BCS, EBC, NBC, etc).

Page 3, at the end of the Introduction: "In the present paper the innovative..." should be changed to "In the present paper an innovative..."

Page 3, at the end of the Introduction: "Through detail formulation and numerical-experiment the accuracy, efficiency and robustness of the work is verified." to assure this more tables and comparisons should be added to the work, or change the text to "Through detailed formulation and numerical examples the proposed method is verified."
Page 3, "As a result in all equations EI is set equal to 1", it is not understandable this sentence, as a result of what?, may be should be changed to "It is considered EI=1 for the proposed method." or similar.

Page 3, "A crack at the point x, on the beam.." please comment and show it correctly in Figure 1.

Page 3, at the end "... the golden derivative..." If this name came from reference [6] please say it. If not, please explain briefly its meaning or consider a similar suggestion.

Page 4, second sentence: "Integrate the equation (1)" should be changed to "Integrating equation (1)...".

Please consider these previous suggestions for the entire work, because there are a lot more.

Page 6, at the end, "in series" should be corrected.

Page 7, It is not understandable how is obtained Eqs: (20)

Page 7, "As a result the equation (17) is revised as" should be corrected.

Page 7, "The finite element (22) is verified through numerical experiments" Is a non understandable develop of equations, and (22) are equations, not "finite elements" that is a method.

Page 9, Example 1: It is not mentioned if the beam section is a rectangular one or not.

Figures and Tables.

Add a figure of the analyzed beam that one end is at x=0 and it ends at x=L. This could be improving Figure 1 and including a Figure for Example 1, 2.

Figure 1 should be improved, it is not understandable. Figure 1 should be named: 1a for the first image, 1b for the second, and so on. Figure 1d must be changed, it is not true what it shows.

Figures 1, 4, 5, 6, 7 should have a much more specific caption explaining what is shown on it, Figures 2 and 3 are ok, or consider a suggestion.

Page 17: "Table 1. Natural frequencies of a cracked cantilever beam" Should be changed to "Table 1. First five natural frequencies values of a cracked cantilever beam, where EI=1, L=1, r=..., etc, the crack position and size considered are..." or similar.

The author should also follow the author guidelines available on the web page. Please see the sample manuscript available on