

## Decision

Major Revision Requested

Alfredo Satyanaga

GE

20.02.2022

### Message for Author

Dear Dr Cindrawaty Lesmana, Thank you very much for submitting your manuscript into our special issue. We have received comments from Reviewer. Please revise the manuscript accordingly. The Authors should provide the responses to each comments from Reviewer.

Best Regards,

Alfredo

Reviewer 1 Report

- The paper highlights an interesting subject not investigated by many. The prestressed concrete is designed based on partial prestressing at the final stage.
- Please replace figures 2 (line 9, page 10) and 4 (line 2, page 12) with better quality pictures; if these are adopted directly from the program, they need to be improved using photoshop software.
- For figure 4, a colored or grey scaled version including a stress range would help explain the stress concentrations in the cracked areas.
- Please also describe the mode of failure, are all element's failure due to tension?
- Bearing-cracks are shown at the support, designated as shear (line 9 page 12). Please elaborate n this phenomenon.
- Figures 5 need to be improved, and fonts are too small and difficult to read. What does "bottom [0]N" means (line 10 page 15)?
- The conclusions should be re-written by carefully contemplating the findings.
- In conclusion, statement line 13 (page 17) is common knowledge and is outside the corridor of the title.
- The sentence "considering the slabs into the structure of beam elements" (line 18) is confusing; please re-formulate Statement 4 (line 10).
- Additional layers always increase the load-carrying capacity; how do the additional layers affect the PC member compared to RC?
- Statement 2 (line 2, page 18) is ambiguous and unclear.
- Generally, short beams can carry a higher load when compared to an identic section for longers spans.
- Please clarify Please proofread the paper since prepositions and conjunctions are not always correctly used

Subject: Submission of a Revised Article for Evaluation

Reference: Paper entitled "Parametric Study on Nonlinear Finite Element Analysis of Prestressed Reinforced Concrete Beam Strengthened by Fiber-Reinforced Plastics" by Cindrawaty Lesmana , Hsuan-Teh Hu , Tsun-Chen Pan , and Zih-Shu Lin for Mathematical Problems in Engineering – Special Issue: Uncertainty in Computational Method for Application in Civil Engineering.

Dr. Alfredo Satyanaga  
Lead Editor

May 1, 2022

Dear Dr. Satyanaga:

Thank you for the valuable insight from the reviewer. I am pleased to submit the following attached revised article entitled "Parametric Study on Nonlinear Finite Element Analysis of Prestressed Reinforced Concrete Beam Strengthened by Fiber-Reinforced Plastics" for publication consideration in the Mathematical Problems in Engineering – Special Issue: Uncertainty in Computational Method for Application in Civil Engineering.

We believe that this manuscript is appropriate for publication by this special issue because it presents the nonlinear finite element analysis for better understanding the design principles of structural analyses for strengthened prestressed concrete beams using Fiber Reinforced Polymer.

This manuscript has not been published and is not under consideration for publication elsewhere.

Correspondence concerning this paper should be addressed to my co-author:

Hsuan-Teh Hu  
Department of Civil Engineering  
National Cheng Kung University, Tainan, Taiwan 701, R.O.C.  
Tel: 886-6-2757575ext63168, Fax: 886-6-2358542  
e-mail: hthu@mail.ncku.edu.tw

Thank you in advance. We are looking forward to hearing from you.

Sincerely yours,

Hsuan-Teh Hu  
Department of Civil Engineering  
National Cheng Kung University, Tainan, Taiwan 701, R.O.C.

### Author's Response to the Comments of Reviewer

Comments of Reviewer #1	Authors' Response to Reviewer #1
Please replace figures 2 (line 9, page 10) and 4 (line 2, page 12) with better quality pictures; if these are adopted directly from the program, they need to be improved using photoshop software.	Thank you for reviewer's suggestion. Figure 2 (line 9, page 9) and 4 (line 2, page 12) have been replaced with better quality pictures.
Please also describe the mode of failure, are all element's failure due to tension?	After the reviewer's first comment is addressed in the revised paper, it is quite clear that the new insight in this paper is: Beams that set under-reinforced, hence expect to appear in tension failure because yielding of steel was responsible for continued higher strains in concrete, resulting in its failure. The sentence has been added at page 12 line 7.
Bearing-cracks are shown at the support, designated as shear (line 9 page 12). Please elaborate this phenomenon.	The authors agree that the cracks show at the support. This phenomenon indicates shear failure that can be avoided by providing additional shear reinforcements near the support where the shear stress is maximum. This statement has been added at page 13 line 3.
Figures 5 need to be improved, and fonts are too small and difficult to read. What does "bottom [0]N" means (line 10 page 15)?	Thank you for reviewer's suggestion. Figure 5 have been replaced with better quality pictures. The explanation about fiber orientation has been stated in page 15 line 5.
The conclusions should be re-written by carefully contemplating the findings. In conclusion, statement line 13 (page 17) is common knowledge and is outside the corridor of the title.	The authors quite agree with the reviewer's comment, the statement has been deleted from the conclusion.
The sentence "considering the slabs into the structure of beam elements" (line 18) is confusing; please re-formulate Statement 4 (line 10).	The statement has been rewrite.
Additional layers always increase the load-carrying capacity; how do the additional layers affect the PC member compared to RC?	Thank you for reviewer's suggestion. However, since the title and purpose are focused in PC member for rectangular and T-beams so the authors will put this suggestion into next manuscript.
Statement 2 (line 2, page 18) is ambiguous and unclear.	The statement has been rewritten.

Subject: Submission of a Revised Article for Evaluation

Reference: Paper entitled "Parametric Study on Nonlinear Finite Element Analysis of Prestressed Reinforced Concrete Beam Strengthened by Fiber-Reinforced Plastics" by Cindrawaty Lesmana , Hsuan-Teh Hu , Tsun-Chen Pan , and Zih-Shu Lin for Mathematical Problems in Engineering – Special Issue: Uncertainty in Computational Method for Application in Civil Engineering.

Dr. Alfredo Satyanaga  
Lead Editor

May 11, 2022

Dear Dr. Satyanaga:

Thank you for the valuable insight from the reviewer. I am pleased to submit the following attached revised article entitled "Parametric Study on Nonlinear Finite Element Analysis of Prestressed Reinforced Concrete Beam Strengthened by Fiber-Reinforced Plastics" for publication consideration in the Mathematical Problems in Engineering – Special Issue: Uncertainty in Computational Method for Application in Civil Engineering.

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This manuscript has not been published and is not under consideration for publication elsewhere.

Correspondence concerning this paper should be addressed to my co-author:

Hsuan-Teh Hu  
Department of Civil Engineering  
National Cheng Kung University, Tainan, Taiwan 701, R.O.C.  
Tel: 886-6-2757575ext63168, Fax: 886-6-2358542  
e-mail: hthu@mail.ncku.edu.tw

Thank you in advance. We are looking forward to hearing from you.

Sincerely yours,



Cindrawaty Lesmana  
Department of Civil Engineering  
Universitas Kristen Maranatha, Bandung, Indonesia  
e-mail: cindra@eng.maranatha.edu

Subject: Submission of a Revised Article for Evaluation

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Dr. Alfredo Satyanaga  
Lead Editor

May 1, 2022

Dear Dr. Satyanaga:

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e-mail: hthu@mail.ncku.edu.tw

Thank you in advance. We are looking forward to hearing from you.

Sincerely yours,

Hsuan-Teh Hu  
Department of Civil Engineering  
National Cheng Kung University, Tainan, Taiwan 701, R.O.C.

Dear Dr. Lesmana,

In order for your submission "Parametric Study on Nonlinear Finite Element Analysis of Prestressed Reinforced Concrete Beam Strengthened by Fiber-Reinforced Plastics" to Mathematical Problems in Engineering to proceed to the review process, there needs to be a revision.

Reason & Details:

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*Dear Authors, Two of reviewers have accepted your manuscript. One reviewer proposed major revision. As the associate editor, I would like to propose minor revision. Please provide necessary revisions based on comments from reviewer before your manuscript can be accepted. Thank you.*

For more information about what is required, please click the link below.

[MANUSCRIPT DETAILS](#)

Kind regards,  
Alfredo Satyanaga

Mathematical Problems in Engineering