[jrm] ID:9341 Article Review Request

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Jenson Zhan <jenson.zhan@techscience.com>
kepada saya

Sen, 23 Des 2019 07.57

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Dear Dr. Muhtar - Muhtar,

This regards the manuscript "Mechanical properties and Stress strain relationship models for bamboo scrimber," which is under consideration by Journal of Renewable Materials.

Following the review of the previous version of the manuscript, the authors have now submitted a revised version of their paper. We would appreciate it if you could help evaluate it.

Please log into the journal web site by 2019-12-25 to indicate whether you will undertake the review or not, as well as to access the submission and to record your review and recommendation.

The review itself is due 2019-12-31.

Submission URL: http://tspsubmission.com/index.php/jrm/reviewer/submission?submissionId=9341&reviewId=18090&key=xLHF2pL6

Thank you for considering this request.

Jenson Zhan
Tech Science Press
jenson.zhan@techscience.com

"Mechanical properties and Stress strain relationship models for bamboo scrimber"

In order to investigate the basic mechanical properties and stress strain relationship model for bamboo scrimber manufactured based on a new technique, a large quantities of experiments have been carried out. Based on the analysis of the test results, the following conclusions can be drawn. Two main typical failure modes were classified for bamboo scrimber specimens both under tension parallel to grain and tension perpendicular to grain. Brittle failure happened for all tensile tests. The slope values for the elastic stages have bigger discreteness compared with those for the specimens under tensile parallel to grain. The failure modes for bamboo scrimber specimens under compression parallel to grain could be divided into four. Only one main failure mode happened both for the bending specimens and the shear specimens. With the COV values of 28.64 and 25.72 respectively, the values for the strength and elastic modulus under tensile perpendicular to grain have the largest discreteness for PBSL. From the point of CHV values, the relationship among the mechanical parameters for bamboo scrimber were proposed based on the test results. Compared with other green building materials, bamboo scrimber manufactured based on a new technique has better mechanical performance and could be used in construction area. Three stress strain relationship models which are four-linear model, quadratic function model, and cubic function model were proposed for bamboo scrimber specimens manufactured based on a new technique. The latter two models gives better prediction for stress strain relationship in elastic plastic stage.

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Article Review Request

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Jenson Zhan <jenson.zhan@techscience.com>
kepada saya

Jum, 27 Des 2019 08.16

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Dear Prof. Muhtar

Thanks for your positive atitudes in the review process, could you plz send me the results no more than next Monday?

Wish you a great day.

Yous

Jenson Zhan

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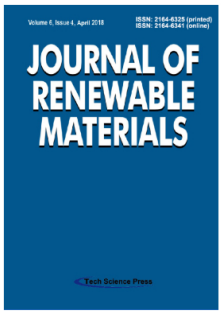

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About the journal

Journal of Renewable Materials (JRM) is an interdisciplinary journal publishing original research covering all aspects of bio-based materials, sustainable materials, and green chemistry. The scope of the journal is devoted to reports of new and original experimental and theoretical research in the areas of materials, engineering, physics, bioscience, and chemistry, which are related to the critical renewable and recyclable applications.

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OPEN ACCESS RESEARCH ARTICLE

Mechanical Properties and Stress Strain Relationship Models for Bamboo Scrimber

Haitao Li[1,*], Huizhong Zhang[1], Zhenyu Qiu[1], Jingwen Su[2], Dongdong Wei[3], Rodolfo Lorenzo[4], Conggan Yuan[3], Hongzheng Liu[5], Chungui Zhou[6]

Journal of Renewable Materials, Vol.8, No.1, pp. 13-27, 2020, DOI:10.32604/jrm.2020.09341

Abstract In order to investigate the basic mechanical properties and stress strain relationship model for bamboo scrimber manufactured based on a new technique, a large quantities of experiments have been carried out. Based on the analysis of the test results, the following conclusions can be drawn. Two main typical failure modes were classified for bamboo scrimber specimens both under tension parallel to grain and tension perpendicular to grain. Brittle failure happened for all tensile tests. The slope values for the elastic stages have bigger discreteness compared with those for the specimens under tensile parallel to grain. The failure modes for bamboo… More

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Compression Behaviors of Parallel Bamboo Strand Lumber Under Static Loading

Haitao Li[1,2,*], Zhenyu Qiu[2], Gang Wu[1,*], Dongdong Wei[3], Rodolfo Lorenzo[4], Conggan Yuan[3], Huizhong Zhang[1,2], Rong Liu[1,2]

Journal of Renewable Materials, Vol.7, No.7, pp. 583-600, 2019, DOI:10.32604/jrm.2019.07592

(This article belongs to this Special Issue: Bio-composite Materials and Structures)

Abstract In order to investigate the influence of length and compression directions upon behaviour of parallel bamboo strand lumber (PBSL) specimens, 240 axial compression tests have been performed. With three similar one different typical failure modes, the mechanical performance for PBSL specimens under compression parallel to grain and perpendicular to grain are different as a whole. From the point of the characteristic values, the compression strength parallel to grain is 2.1 times of the compression strength perpendicular to grain. The elastic modulus for compression parallel to grain is 3.64 times of the compression strength perpendicular to grain. While the compression ratios… More

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Development of CaO From Natural Calcite as a Heterogeneous Base Catalyst in the Formation of Biodiesel: Review

Nuni Widiarti[1], Yatim Lailun Ni'mah[1], Hasliza Bahruji[2], Didik Prasetyoko[1,*]

Journal of Renewable Materials, Vol.7, No.10, pp. 915-939, 2019, DOI:10.32604/jrm.2019.07183

Abstract Biodiesel is a fossil fuel that is in demand to be developed because it is bio-renewable, biodegradable and environmentally friendly. Biodiesel produced from the transesterification reaction of vege Tab. oil using a base catalyst. CaO is the most developed catalyst for the reaction of transesterification of oil into biodiesel because it is cheap, the process is easy and has a high level of alkalinity. CaO is a cheap catalyst because it is easily obtained from natural ingredients. The use of CaO catalysts in the reaction formation of biodiesel continues to develop through modification with various porous materials and different oxide… More

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Alternatives of Small-Scale Biorefineries for the Integrated Production of Xylitol from Sugarcane Bagasse

Nicolás M. Clauser[1*], Soledad Gutiérrez[2], María C. Area[1], Fernando E. Felissia[1], María E. Vallejos[1]

Journal of Renewable Materials, Vol.6, No.2, pp. 139-151, 2018, DOI:10.7569/JRM.2017.634145

Abstract Small-scale biorefinery from sugarcane bagasse offers new possibilities to the sugar and ethanol industries. The aim of this study was to evaluate the feasibility of a small-scale biorefinery for the production of xylitol from sugarcane bagasse. The liquid fraction from the autohydrolysis treatment was selected as the source of sugars for xylitol and two scenarios were analyzed for the residual solid: ethanol or pellet production. A technical-economic analysis of alternatives was applied. The internal rate of return (IRR) was used to compare the selected proposals. The highest IRR values were obtained when processing 70,000 dry tons per year of bagasse.… More

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Review on Connections for Original Bamboo Structures

Chaokun Hong[1a,2], Haitao Li[1a,2,*], Rodolfo Lorenzo[3], Gang Wu[1b], Ileana Corbi[4], Ottavia Corbi[4], Zhenhua Xiong[5], Dong Yang[1a,2], Huizhong Zhang[1a,2]

Journal of Renewable Materials, Vol.7, No.8, pp. 713-730, 2019, DOI:10.32604/jrm.2019.07647

Abstract Bamboo is a green construction material in line with sustainable development strategies. The use of raw bamboo in architecture has existed since ancient times. In the long development years of original bamboo buildings, many areas in the world gradually formed unique bamboo buildings, which have become an important local cultural feature. For building structures, joints are the key to ensure structural load transfer. Because of hollow and thin-walled material property of bamboo, the connection in raw bamboo buildings has always been a major difficulty and problem in the application of bamboo, which seriously hinders the development of original bamboo structures.... More

OPEN ACCESS RESEARCH ARTICLE

Modeling Water Adsorption and Retention of Building Materials From Pore Size Distribution

Abdelkrim Trabelsi[1,*], Zakaria Slimani[1], Akli Younsi[2], Joseph Virgone[1], Rafik Belarbi[2]

Journal of Renewable Materials, Vol.7, No.6, pp. 547-556, 2019, DOI:10.32604/jrm.2019.04426

Abstract Water adsorption and capillarity are key phenomena involved during heat and moisture transfer in porous building materials. They account for interaction between solid matrix, liquid water and moist air. They are considered through Water Vapor Adsorption Isotherm (WVAI) and Retention Curve (RC) functions which are constitutive laws characterizing water activity within a porous medium. The objective of this paper is to present a water vapor adsorption and retention models built from multimodal Pore Size Distribution Function (PSDF) and to see how its parameters modify moisture storage for hygroscopic and near saturation ranges. The microstructure of the porous medium is represented... More

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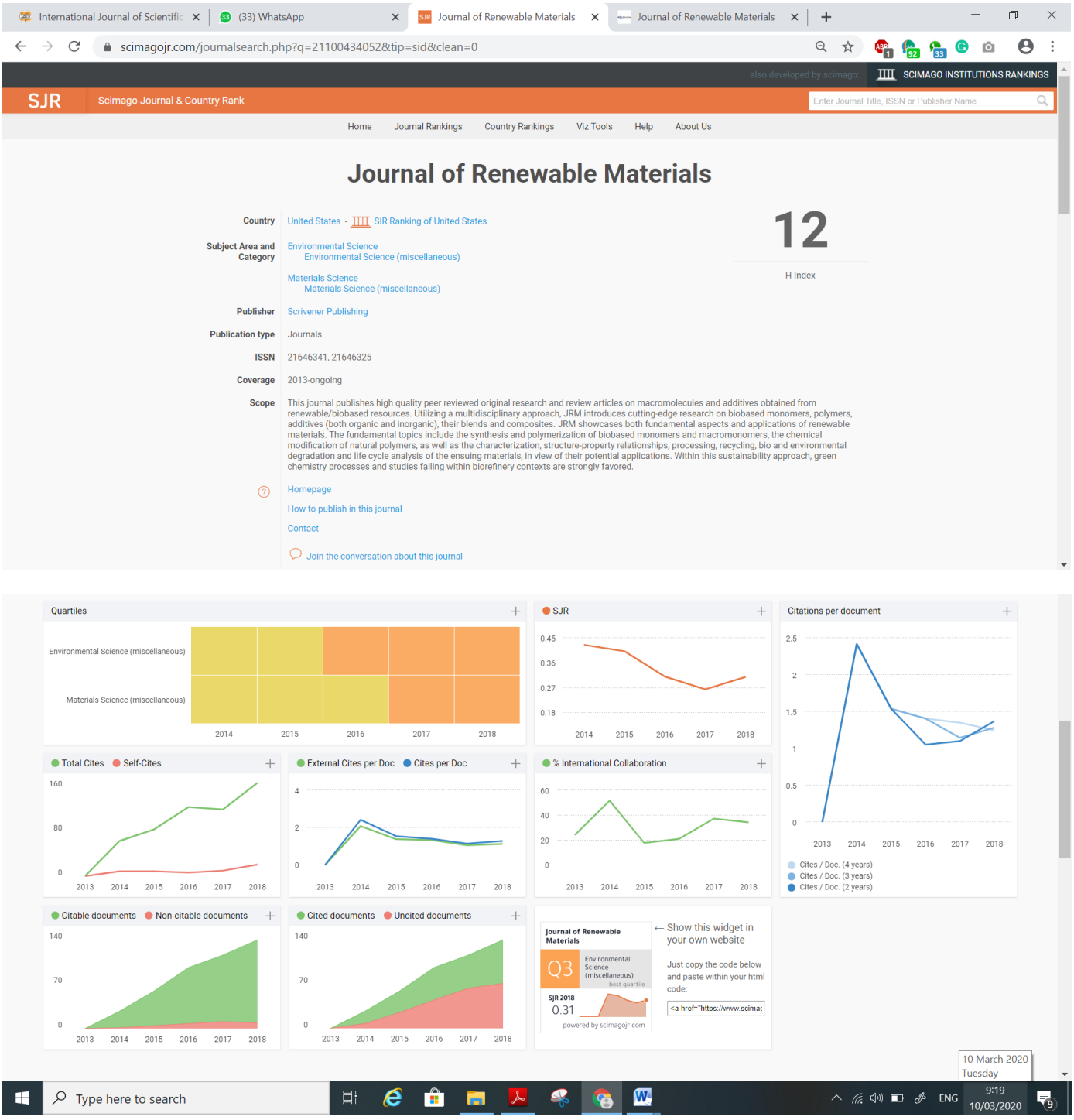
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This journal publishes high quality peer reviewed original research and review articles on macromolecules and additives obtained from renewable/biobased resources. Utilizing a multidisciplinary approach, JRM introduces cutting-edge research on biobased monomers, polymers, additives (both organic and inorganic), their blends and composites. JRM showcases both fundamental aspects and applications of renewable materials. The fundamental topics include the synthesis and polymerization of biobased monomers and macromonomers, the chemical modification of natural polymers, as well as the characterization, structure-property relationships, processing, recycling, bio and environmental degradation and life cycle analysis of the ensuing materials, in view of their potential applications. Within this sustainability approach, green chemistry processes and studies falling within biorefinery contexts are strongly favored.
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Review: ***Mechanical properties and Stress strain relationship models for bamboo scrimber***

Request for Review

You have been selected as a potential reviewer of the following submission. Below is an overview of the submission, as well as the timeline for this review. We hope that you are able to participate.

Article Title

Mechanical properties and Stress strain relationship models for bamboo scrimber

Abstract

In order to investigate the basic mechanical properties and stress strain relationship model for bamboo scrimber manufactured based on a new technique, a large quantities of experiments have been carried out. Based on the analysis of the test results, the following conclusions can be drawn. Two main typical failure modes were classified for bamboo scrimber specimens both under tension parallel to grain and tension perpendicular to grain. Brittle failure happened for all tensile tests. The slope values for the elastic stages have bigger discreteness compared with those for the specimens under tensile parallel to grain. The failure modes for bamboo scrimber specimens under compression parallel to grain could be divided into four. Only one main failure mode happened both for the bending specimens and the shear specimens. With the COV values of 28.64 and 25.72 respectively, the values for the strength and elastic modulus under tensile perpendicular to grain have the largest discreteness for PBSL. From the point of CHV values, the relationship among the mechanical parameters for bamboo scrimber were proposed based on the test results. Compared with other green building materials, bamboo scrimber manufactured based on a new technique has better mechanical performance and could be used in construction area. Three stress strain relationship models which are four-linear model, quadratic function model, and cubic function model were proposed for bamboo scrimber specimens manufactured based on a new technique. The latter two models gives better prediction for stress strain relationship in elastic plastic stage.

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Review: ***Mechanical properties and Stress strain relationship models for bamboo scrimber***

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Review: *Mechanical properties and Stress strain relationship models for bamboo scrimber*

Review Submitted

Thank you for completing the review of this submission. Your review has been submitted successfully. We appreciate your contribution to the quality of the work that we publish; the editor may contact you again for more information if needed.

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Reviewer D:

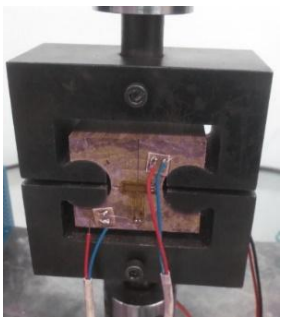
Revision order

This article is quite interesting. Bamboo is a renewable and environmentally friendly material. Bamboo has a tensile strength high enough to be applied to construction elements, especially simple construction. Bamboo mechanical behavior can be seen in the stress-strain relationship. The relationship of strain stress of bamboo is strongly influenced by several factors, including the type of bamboo, the condition of the bamboo when tested (water content, treatment), and the position of the bamboo node points. Although this paper is worthy of publication, it still needs corrections to the following points:

1. The test method is not displayed as to how the position of the loading point works (Fig. 2). Please explain (**Materials and test methods**)

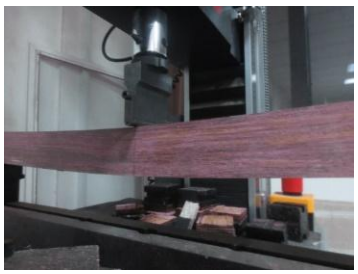
   Test photos were added in the paper.

(a) Tensile parallel to the strain



(b) Tensile perpendicular to grain

(c) Compression



(d) Bending

(e) Shear

Fig. 3 Test photos for bamboo scrimber

2. Bamboo specimens for tensile test, flexural test, and shear test. Is it through treatment first? Is bamboo normal? Please explain in this paper (**Materials and test methods**).

   These specimens were cut directly from the manufactured bamboo scrimber and no other treatments. Detailed introduction about the manufacturing process for bamboo scrimber could be seen from the paper.

Spesimen ini dipotong langsung dari scrimber bambu yang diproduksi dan tidak ada perawatan lain. Pengantar rinci tentang proses pembuatan scrimber bambu bisa dilihat dari kertas

3. Bamboo's weak is at the bamboo node point, so cracks and failures always occur in this position. Do all test objects contain nodes? How many nodes are each test object? Please explain in this paper (**Materials and test methods**).

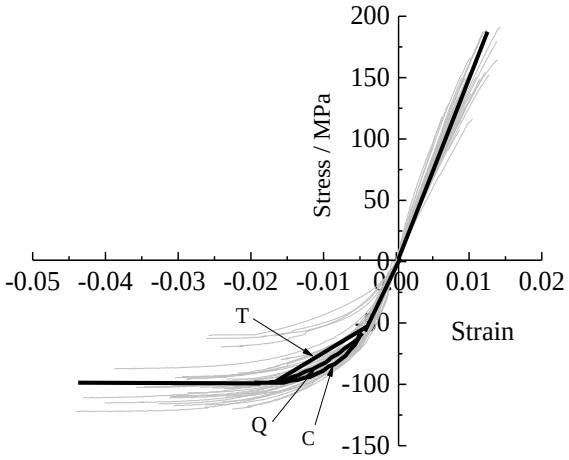
   All strips were split into bamboo bundles by passing through a roller press crusher. And nodes exist randomly. That is the trait of the bamboo scrimber products.

   Semua strip dipecah menjadi bundel bambu dengan melewati roller press crusher. Dan node ada secara acak. Itulah sifat dari produk scrimber bambu

4. The model of a quadratic function and cubic function gives a better prediction for the stress-strain relationship in the elastic-plastic stage when compared to the four-linear model. Please combine these three models into one graph so that readers better understand the difference (Fig. 12, Fig. 13, and Fig. 14) (**Test results and analysis)**

   A good suggestion. We have combined these three models into one graph when compared with the test results.

   Saran yang bagus. Kami telah menggabungkan ketiga model ini menjadi satu grafik bila dibandingkan dengan hasil pengujian



5. The entire paper has to be check for some grammatical errors and typos

   Thanks. We have check the whole paper and modified.

   Terima kasih. Kami telah memeriksa seluruh kertas dan dimodifikasi

Reviewer G:

The authors investigate the basic mechanical properties and provide the three stress-strain relationship models for the bamboo scrimber based on a new technique under different stress states. But it still had some problems to revise and improve as the following:

1. The authors carried out the mixed loading method, “The load was applied initially through load control in the elastic stage, and then was changed to displacement control before the proportional limit” in the manuscript. Please explain and add more details for different stress states. How did you determine the elastic modulus?

   We will finish one specimen for each group firstly and decide the stress states according to the strain-stress lines from the test results. It is common methods to perform the tests. As for the elastic modulus, we got it just based on the test strain-stress lines and it is easy to get it from the lines.

2. The frequencies of strain were not given in the paper.

   The frequencies of all strains were 1 values per second.

3. Please add the explanation for the PBSL in the introduction parts. The authors should keep the uniform for the same material.

   We have changed all PBSL and one name was used for same material.

4. The authors compared the mechanical parameters of different engineered bamboo and wood. Please explain the difference, especially for BS and PBSL.

Both BS and PBSL are bamboo scrimber materials and the name has been unified. The main difference for them is the manufactured technology and the mechanical properties. The following sentences were added in the paper.

Except E_b, all other test values are for bamboo scrimber manufactured based on the new technique are bigger than the test values for bamboo scrimber (Sharma et al.) [21] produced by the traditional method.

5. How did you determine the characteristic values? For the specimens from the same batch, whether it is appreciable to introduce the concept?

   The method to determine the characteristic values were introduced in the paper. The concept has been always used in this situation to discuss the test results.

   CHV means characteristic value, calculated on the basis that 95% of samples exceed the characteristic value (mean ultimate value - 1.645 x standard deviation)

6. For the compressive specimens perpendicular to grain, the location of strain gauges is meaningless at the bottom of the specimens. Please explain.

None photos for compressive specimens perpendicular to grain were shown in the picture. And we never pasted the strain gauges at the bottom of the specimens. We only pasted them on the side surface.

7. When the authors introduce the tensile, compressive, bending properties, the relevant parameters can be described in the Table. It will make the paper more concise.

   We have moved the introduction part to the note part of the table.

8. Regarding the three models, how did you determine the yield points?

   The yield points were determined by the test strain stress lines. Each specimen contains on yield points and we could choose the CHV values as the final yield points.