Bukti Koresponden

Electrical Characteristic Analysis of Photovoltaic Thermal With And Without ∇-Groove Absorber

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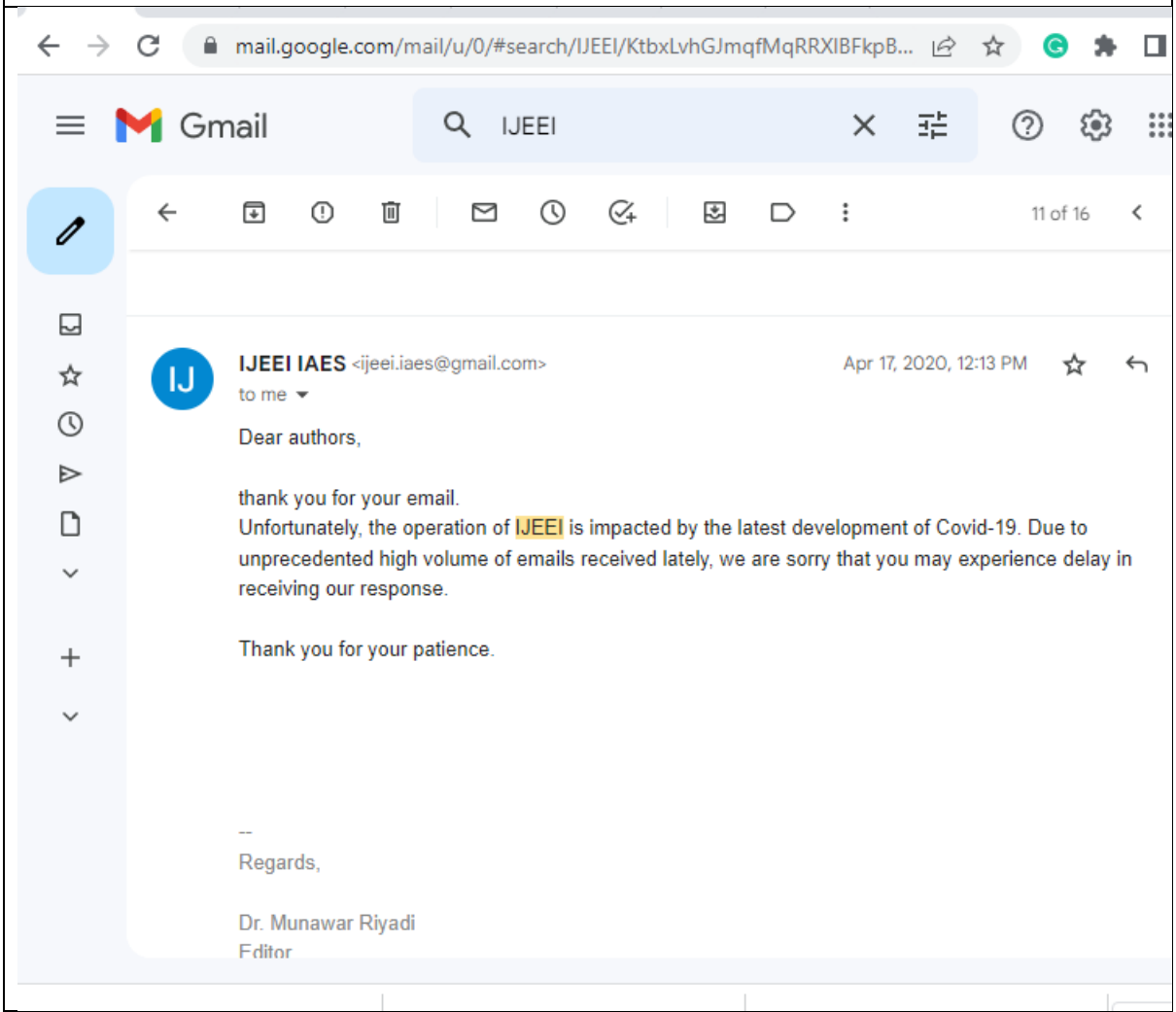
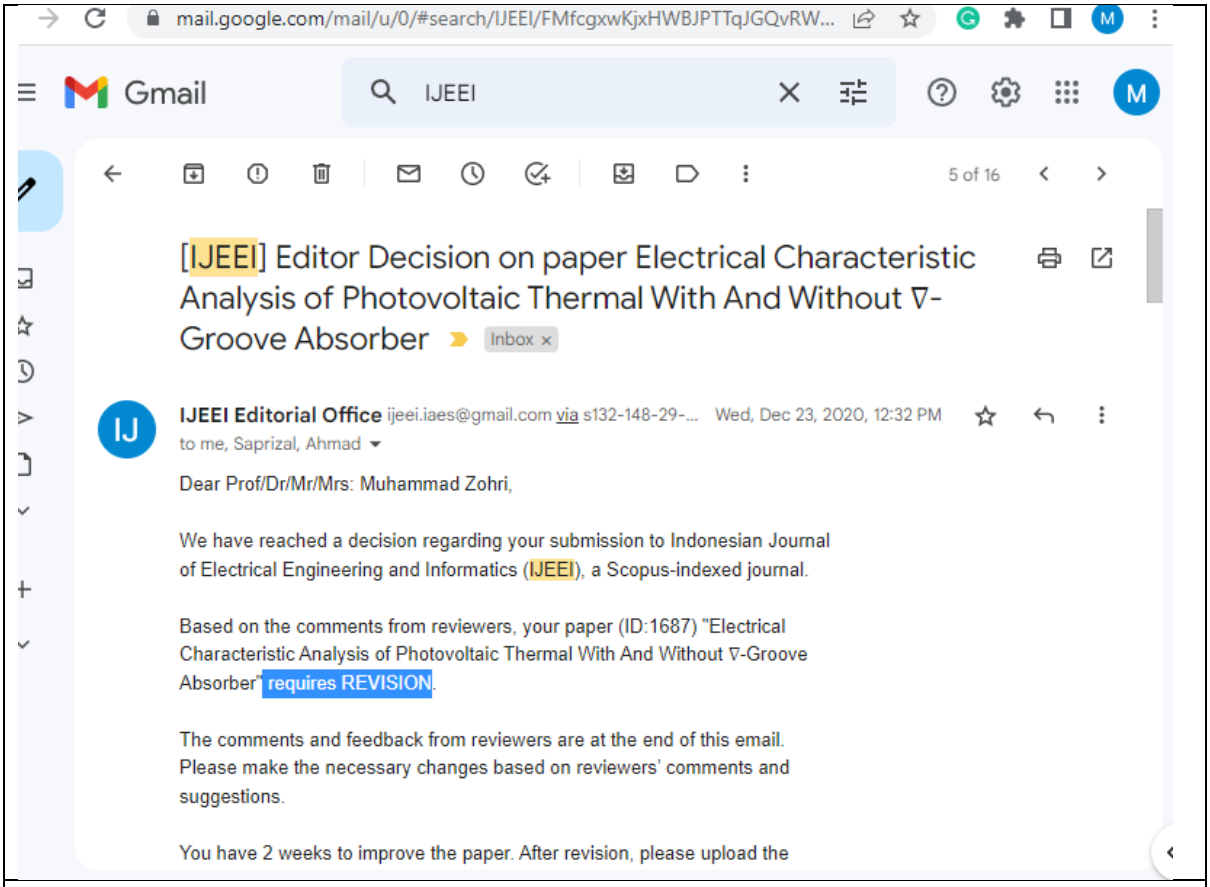
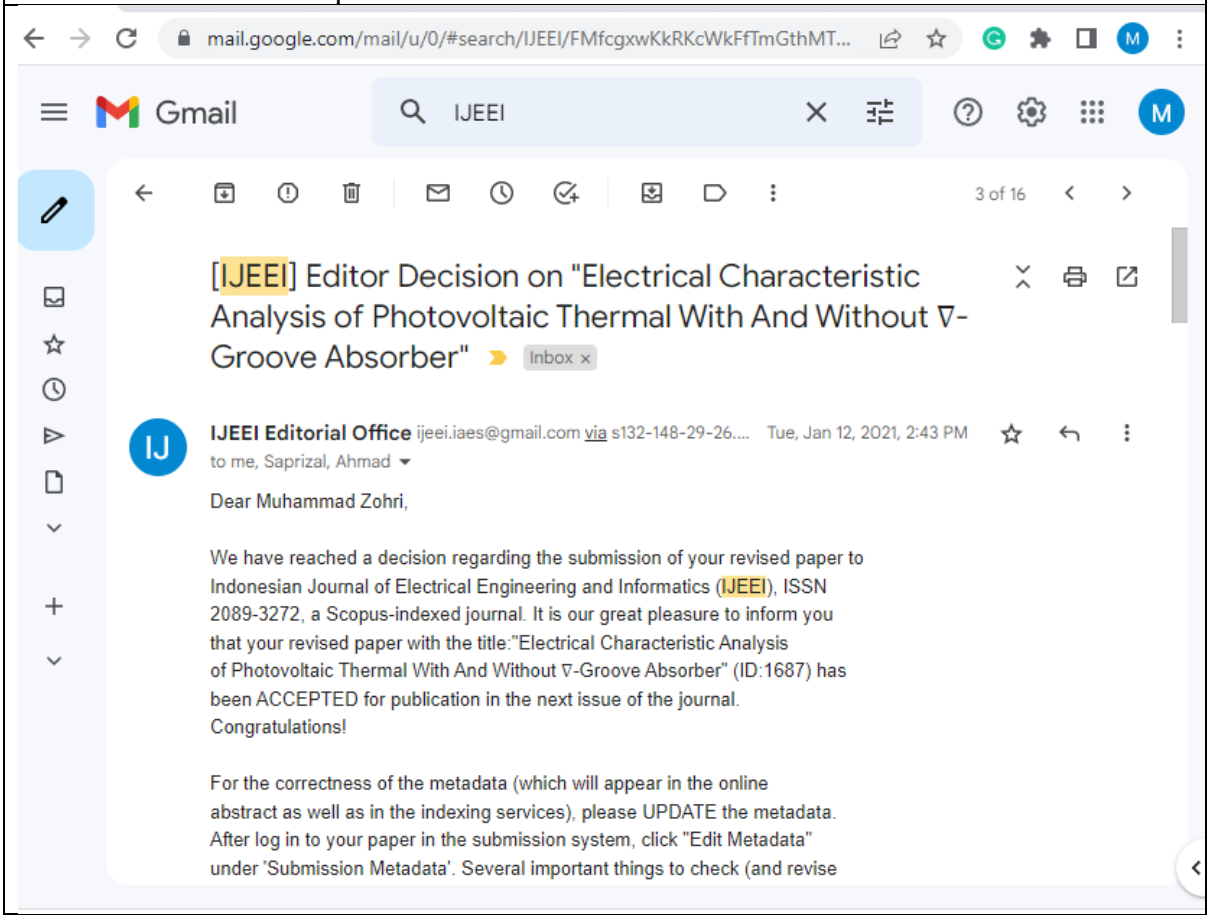
1. **Submission to IJEEI**

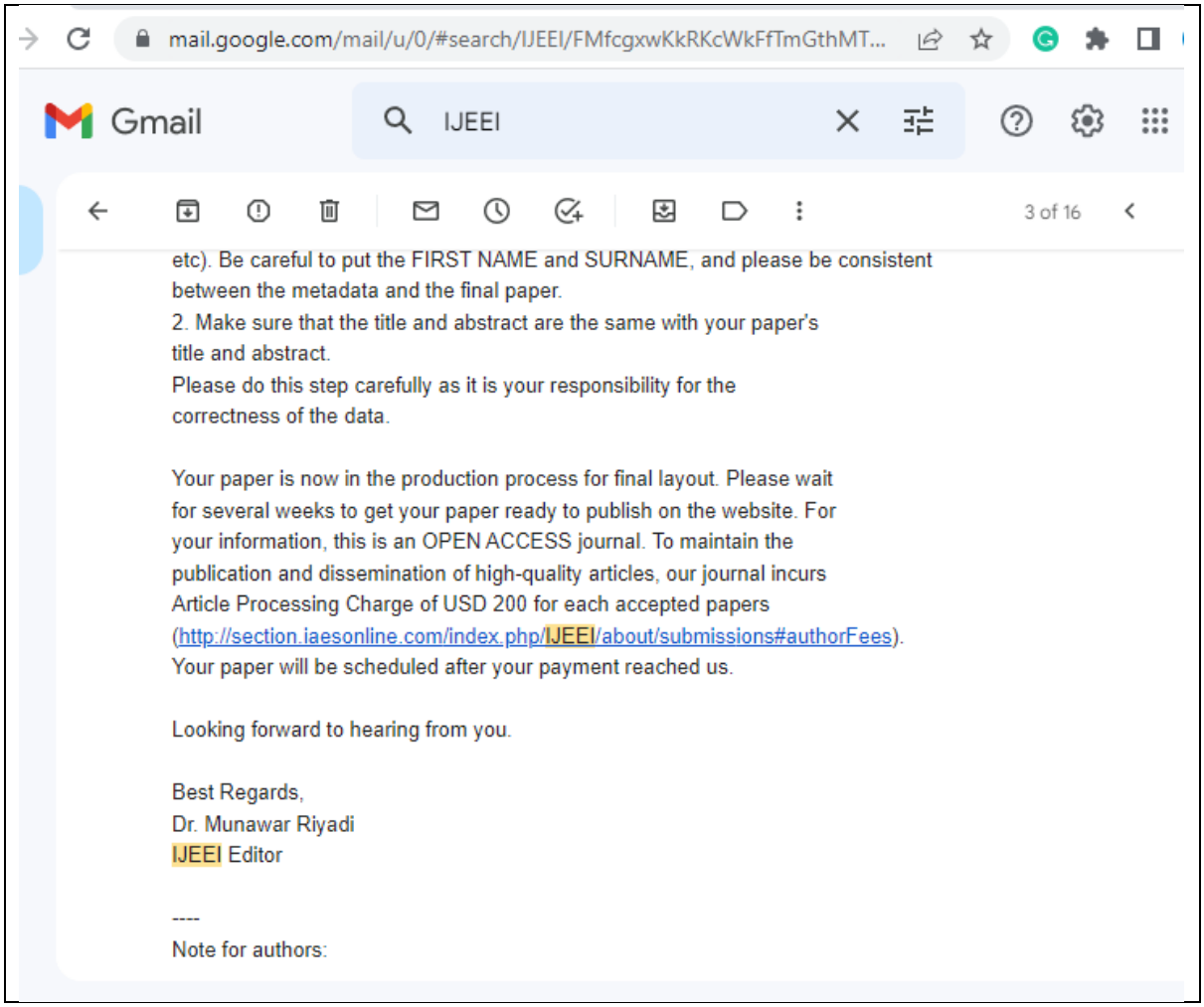


2. Revision Required



3. Decision to Accepted submission





Electrical Characteristic Analysis of Photovoltaic Thermal With And Without ∇-Groove Absorber

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No.	Reviewer 1	Answers
1.	The paper has many grammatical errors which need to be improved.	We have made revision for grammatical errors
2.	I have concerns about the excessive self-citation of the authors' papers, as many references are from their own papers. Moreover, the groove technology for PVT has been around for more than a decade, thus the authors should compare and review other researchers' works as well.	We have compared with others works in table 3

3.	What is the correlation of the material's thermal conductivity and the structure of the v-groove?	An integrated collector between V-Absorber and plat plate absorbers as a collector in the PVT system is called ∇-Absorber. The use of V-Absorber to cooling of Photovoltaic panel based-on air improved the thermal performance [18]-[21]. In this study, the v-groove is changed by the ∇-Absorber. An integrated collector between V-Absorber and plat plate absorbers as a collector in the PVT system is called ∇-Absorber. Two materials will expend surface area contact of photovoltaic. Heat conductivity by using ∇-Absorber is expected to be higher than v-groove alone.
4.	The structure of v-groove is not illustrated in this paper.	The material of this research is ∇-absorber which was produced from a bar of aluminum. There are 13 units of the bar. The width and length are 3.4 cm and 114 cm respectively. The vertex angle of ∇-absorber is 60o. The ∇-absorber was positioned under a photovoltaic or PV panel
5.	In the introduction, the author did mention about this: "Heat conductivity by using ∇-Absorber is expected to be higher than v-groove alone. ".	The modification of v-groove to expand the performance is designed with ∇-groove. The purpose of this design is to improve heat conductivity. The surface's conductivity in contact is expected to increase the heat conductivity that touches the photovoltaic panels (PV). However, the use of ∇-groove is expected to contact all of the photovoltaic panel's backsides. Heat transfer can be expected to increasing the performance of the PVT system. This paper proposes the electrical characteristic with experimental indoor testing of photovoltaic thermal with and without ∇-Absorber
No.	**Reviewer 2**	**Answers**
1.	The paper is the continuation of authors' works. The authors need to address the previous work in a more elaborative way, especially Ref. [4]	See in table 3

	and [28], and to show the difference or enhancement from the previous research.	
2.	The paper lacks the explanation of physical aspect or governing equation of the v-absorber. How is the theoretical aspect of the presence of the v-absorber on the increasing performance of PVT?	The material of this research is ∇-absorber which was produced from a bar of aluminum. There are 13 units of the bar. The width and length are 3.4 cm and 114 cm respectively. The vertex angle of ∇-absorber is 60o. The ∇-absorber was positioned under a photovoltaic or PV panel. The photovoltaic panel was used by monocrystalline of 100 Watt. For the design and equation detailed and explained in reference [22].
3.	In terms of result presentation, it is suggested that the figures directly compare those with and without v-absorber to see the improvement suggested by authors.	See in from figure 1 until figure 4.
4.	The PVT efficiency found in this paper is 3-5%, which is rather low compared to other researches (see: e.g. Energies 2019, 12, 3063; doi:10.3390/en12163063, Journal of the Korean Solar Energy Society 32(2), 2012. DOI: 10.7836/kses.2012.32.2.001). Please elaborate on this finding and compare with others.	See in line table 3