

Peer Review

Review of: "Impedance of a Hydrogen–Fed SOFC Anode: Analytical and Numerical Models Based on the Dusty Gas Transport Model"

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Dear Editor,

I have now reviewed the manuscript titled "Impedance of a Hydrogen–Fed SOFC Anode: Analytical and Numerical Models Based on the Dusty Gas Transport Model".

The paper presents the analytical low-current and numerical high-current models for the impedance of a hydrogen–fed anode of an anode–supported button SOFC. The authors have shown that their analysis may help to improve the available energy efficiency of the overall system.

The paper title clearly describes the content of the work. The quality of the figures is acceptable. The chosen references are adequate for the topic of the paper and cover recent important papers.

The methods are correct. This paper should be improved in the light of comments so that the quality of the paper is increased.

Sincerely,

Prof. Dr. Imdat Taymaz

Changes which must be made before publication:

- 1- Please include more justification of how this paper is original - there are numerous SOFC studies available.
- 2- It is recommended to give more details on how they concentrate on improving the model with the use of the Theoretical Method. Is there any novel idea or not?
- 3- Discuss the rationality of the assumptions made in the methodology.

- 4- Please discuss the ability of the model to capture dynamic effects.
- 5- Experimental and model results should be examined more comprehensively.
- 6- More comparative interpretation could be expected in the paper.
- 7- The authors are encouraged to provide a greater depth of discussion about each figure.
- 8- Please detail what the practical outcome of the application is.
- 9- The conclusions section should be enhanced to some extent. In its current form, it mainly contains a synopsis of the work conducted. The authors should clearly cite the challenges they met during its implementation as well as recommendations for future research.

Declarations

Potential competing interests: No potential competing interests to declare.