Reviewer 2

Comment 1: Validation of the present ADM results should be done with other published work by simplifying the work, if applicable. Currently, only numerical comparison is done in Table 1.

Response to Comment 1: Thank you very much for the good review work. The result of the present study has been compared with other works as presented in Table 1 of the revised manuscript.

Comment 2: How many terms are considered in the ADM? Please mention it clearly.

Response to Comment 2: 15 Adomian terms were considered for each of the nonlinear parts of the model as clearly stated in the revised manuscript.

Comment 3: Literature survey ignores many important works on the application of ADM and other semi-analytical and numerical techniques used in the heat transfer analysis of fins. Please see the following and discuss them to convincingly highlight the gaps within the existing studies and justify the importance of the present work.


Response to Comment 3: Thank you very much the authors have considered all related works and integrated into the revised appropriately.

Comment 4: Why an insulated tip/adiabatic boundary condition is considered in equation 10? In reality, it should be at-least convective.

Response to Comment 4: For most practical applications, the fin thickness at the end is relatively small that the heat transfer from the fin tip can be neglected and the solution can be obtained assuming fin is insulated at the tip. Therefore, in this work, we assumed that the tip of the fin is adiabatic/insulated.

Comment 5: Please provide suitable referencing to various expressions written in equations 1 to 9. Equations which are not the direct outcomes of the present study must be referred.

Response to Comment 5: The equations were derived in the present study. However, the equations that are not the direct product of the present manuscript have been properly referenced.
Comment 6: What type of fluid is considered here? Is it air or any liquid?

Response to Comment 6: The main fluid is air but other fluids may be considered by simply supplying their thermos-physical values.

Comment 7: Mention clearly various assumptions used in the study. In particular, kindly indicate the conditions where a 1-dimensional model as used in the present study holds good.

Response to Comment 7: The reviewer’s comment on this has been considered and effected in the revised paper.

Comment 8: Why ADM is used here? In the literature, there are many semi-analytical techniques. So, what is the importance of ADM with respect to other techniques must be highlighted.

Response to Comment 8: The analytical solutions obtained in Eq. (23) - (24) are the closed-form solutions of the linearized form of the nonlinear model of the present study. However, when the nonlinear term is incorporated, the developed analytical scheme (special functions) fails. This necessitates the need for an alternative analytical scheme as the numerical approach is employed for verification. ADM is employed in the present study because it transforms only the nonlinear terms into an Adomian function with all the linear terms preserved which increases the accuracy of the method. However, a strong limitation of ADM is the ability to obtain the right Adomian level, which when obtained, speeds up the convergence of the required solution.

Comment 9: It is better to study the variations of fin efficiency for some cases of FGM.

Response to Comment 9: Thank you very much once again for the approaches employed towards improving the quality of our manuscript. The fin efficiency analysis is vital and has been discussed extensively based on the scope of the present study. However, the reviewer comment on numerical examples would be considered in our subsequent work.