Review of: "Comparison of extended irreversible thermodynamics and nonequilibrium statistical operator method with thermodynamics based on a distribution containing the first-passage time"

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Potential competing interests: No potential competing interests to declare.

The study considers various conditions for the dependence of the distribution parameters of the first-passage time on the random value of energy, the first thermodynamic parameter. In this context, the time parameter relaxation time (τ) of extended irreversible thermodynamics is substituted with the average first-passage time. Expressions are derived for the thermodynamic parameter and its conjugate, representing the first passage time through the entropy change, as well as for the average first-passage time through the flows. This comparative analysis aims to shed light on the relationships and implications of different approaches within the realm of non-equilibrium thermodynamics.

The problem is interesting, high-level research, and the results are important, but the paper needs the following points to be noted:

1. The author should explain the novelty clearly in the abstract and conclusion.
2. What are the advantages of the proposed new model?
3. The authors should include scientific reasoning for the graphical results in detail.
4. What are the advantages of the method used?
5. English should be improved in the paper.
6. The literature survey might be improved by adding some relevant references such as:

- Finite element analysis of the thermoelastic interactions in an unbounded body with a cavity. Forsch Ingenieurwes 2007, 71, 215-222, doi:10.1007/s10010-007-0060-x.

- An Eigenvalues Approach for a Two-Dimensional Porous Medium Based Upon Weak, Normal and Strong Thermal Conductivities. Symmetry 2020, 12, doi:10.3390/sym12050848.

- 2D deformation in an initially stressed thermoelastic half-space with voids. Steel Compos. Struct. 2016, 20, 1103-1117, doi:10.12989/scs.2016.20.5.1103.

-Nonlinear transient thermal stress analysis of temperature-dependent hollow cylinders using a finite element model. Int. J. Struct. Stab. Dyn. 2014, 14, doi:10.1142/S0219455414500254.

- Photo-thermal interactions in a semi-conductor material with cylindrical cavities and variable thermal conductivity. Journal of Taibah University for Science 2020, 14, 1369-1376, doi:10.1080/16583655.2020.1824465.

- The Effects of Fractional Time Derivatives in Porothermoelastic Materials Using the Finite Element Method. Mathematics 2021, 9, doi:10.3390/math9141606.