Review of: "Investigation of the Dielectric Behaviour of Propylene Glycol (100) Dispersed With Graphene Nano Powder to Determine the Optimal Conditions Using Response Surface Methodology"

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Potential competing interests: No potential competing interests to declare.

Several areas of improvement could enhance the robustness and applicability of the study:

Validation and Generalization: It's essential to validate the predictive performance of the developed model using an independent dataset. Additionally, testing the model's performance across a broader range of conditions or in different setups would enhance its generalizability.

Model Complexity: While the 2FI model shows promising results, exploring more sophisticated modeling techniques such as response surface regression or machine learning algorithms could potentially yield even more accurate predictions.

Experimental Design Optimization: Consideration of factors such as sample size, experimental noise, and the resolution of the experimental design could help ensure the reliability and reproducibility of the results.

Incorporating Additional Factors: The study could benefit from incorporating other relevant factors or parameters that may influence the dielectric behavior of the nanofluid, such as temperature, pressure, or nanoparticle concentration.

Sensitivity Analysis: Conducting sensitivity analysis to identify the most influential factors or interactions could provide valuable insights into the underlying mechanisms governing the behavior of the nanofluid.

Real-world Application Validation: Beyond laboratory-scale testing, validating the model's predictions in real-world applications or relevant industrial settings would enhance its practical utility and relevance.

Uncertainty Quantification: Assessing and quantifying the uncertainties associated with the model predictions can provide a more comprehensive understanding of the model's reliability and limitations.

Interpretability: Providing clear explanations and interpretations of the model's parameters and results would facilitate the application of the findings in practical scenarios.

Addressing these aspects would strengthen the study's validity, reliability, and practical relevance, thereby enhancing its impact on the field of nanofluid research and applications.