Response to Reviewer

No.	Comment	Correction
1.	The manuscript would benefit from careful proofreading. There are several grammatical and stylistic issues that sometimes make it difficult to follow the narrative.	Thank you for your valuable feedback. We acknowledge that there were grammatical and stylistic issues in the initial submission. The manuscript has now been thoroughly proofread and revised for clarity, grammar, and overall readability. We believe the changes have significantly improved the quality and flow of the narrative.
2.	Some of the figure captions are too brief. Providing more descriptive captions (including units, simulation conditions, and key findings) will help readers understand the significance of each figure without referring back to the main text.	Thank you for your valuable feedback. We have revised the figure captions (Figure 1, 2, 3) to make them more descriptive. The updated captions now include relevant details such as units, simulation conditions, and key findings to enhance clarity and allow readers to understand each figure independently from the main text. We believe these improvements will significantly aid in the reader's comprehension.
3.	While the simulation results are well-presented, the discussion could be deepened. For example, when SiO_2 outperforms HfO_2 in certain metrics, a brief explanation of the physical reasoning behind this would add insight. Similarly, why TiN provides a more stable work function and performance could be better contextualised.	We appreciate the reviewer's valuable feedback. In response, we have expanded the discussion in the revised manuscript to provide more physical insight into the observed behaviors: 1. Higher k-values are characteristically related with a greater density of interfacial trap charges hence can contribute to the performance reduction in high-k dielectric devices [25]. 2. TiN is an ideal metal gate material for advanced MOSFETs due to its wide work function tunability (4.52–4.03 eV), along with excellent thermal and chemical stability, making it highly suitable for low-power, low-voltage operation [27].
4.	The conclusion section is clear but could be strengthened by including a brief mention of potential next steps or directions for experimental validation.	We thank the reviewer for this constructive suggestion. In response, we have revised the conclusion section to include a brief mention of future directions. Specifically, we have added a sentence highlighting the potential for experimental validation of the

		simulation findings through device fabrication and testing. This addition aims to outline a clear path forward and connect the simulation work to practical implementation. **These findings provide a foundation for future experimental validation through fabrication and characterization of SiNW GAA TFET prototypes, which would help verify the simulation outcomes and assess their applicability under real-world conditions."**
5.	Please check the formatting and completeness of your references. A few references are slightly outdated or inconsistently presented. Including some recent studies from the last 3–4 years would also help position your work within the current research landscape.	We thank the reviewer for pointing out this important aspect. In response, we have carefully reviewed and revised the entire reference list to ensure consistent formatting in accordance with the journal's style guide. We have also updated several outdated references and added more recent and relevant studies from the last 3–4 years to strengthen the context and demonstrate alignment with current research trends in the field of TFET technology. These updated references help better position our work within the evolving body of literature and provide a clearer perspective on recent advancements related to device modeling, material selection, and performance optimization. We believe these revisions improve the overall quality and relevance of the manuscript.

Reviewer 2

No.	Comment	Correction
1.	Figure 1- need to be improved (the labeling is too small).	We appreciate the reviewer's observation. In response, Figure 1 has been revised to enhance clarity and readability. Specifically, the font size of all labels, axis titles, and legends has been increased to ensure better visibility. We have also adjusted the layout and resolution to meet publication standards and to improve the overall presentation quality. The updated figure is now more reader-friendly and effectively conveys the intended information. We hope this revision meets the reviewer's expectations.
2.	In Section 2.3, it is stated that 'HfO_2 has been used as a gate oxide dielectric, where the metal gate work function simulated for the device is φM = 4 eV, as shown in Table II.' However, Table II is not included in the paper.	We thank the reviewer for identifying this oversight. The reference to Table II was a remnant from an earlier draft, and the table was inadvertently omitted during the final compilation. To address this, we have taken the following action: **Removed the reference to Table II** and **integrated the relevant data directly into the main text** of Section 2.3 for clarity and completeness.
3.	In Section 2.3, the text states: '… energy band in the i-channel region [1] as shown in Fig. 4. The cross-sectional area of the device was indicated in Fig. 3, where the structure was created …'. The sequence should be revised, Fig. 3 should be mentioned before Fig. 4, or the figure labels should be adjusted accordingly to maintain a logical flow.	We thank the reviewer for highlighting this inconsistency. In response, we have revised the sequence of figure references in Section 2.3 to ensure a logical and coherent flow of information. Figure 3, which illustrates the cross-sectional area of the device, is now mentioned before Figure 4, which presents the energy band in the i-channel region. This adjustment improves the clarity and readability of the section, ensuring that the figures are introduced in a more intuitive order that aligns with the progression of the text.
4.	In Section 3.1, the sentence '…Oxide thickness is related to the oxide capacitance, as expressed in Equation 1…' contains a typographical error. It should refer to Equation 3 instead of Equation 1.	We thank the reviewer for catching this typographical error. The reference to Equation 1 was incorrect, and it should indeed refer to **Equation 3**, which correctly represents the relationship between oxide thickness and oxide

		capacitance. This has been corrected in the revised manuscript to maintain accuracy and consistency in the presentation of technical content.
5.	Please standardize the usage of 'threshold voltage' either use Vth or VTH consistently throughout the paper.	We thank the reviewer for pointing out this inconsistency. In response, we carefully reviewed the manuscript and standardized the notation for **threshold voltage**. We have chosen to consistently use **threshold voltage** in line with common convention in semiconductor device literature. This change has been applied throughout the paper to ensure clarity and uniformity in technical terminology.
6.	Please use Fig.11 in the text instead of Figure 11.	We thank the reviewer for this formatting suggestion. In response, we have revised the manuscript to use **"Fig. 11"** instead of **"Figure 11"** in the main text, and have applied this formatting consistently across all figure references, in accordance with the journal's style guidelines.
7.	For the first instance an abbreviation is used in the text, the full term should be stated, followed by the abbreviation in parentheses, for example, Threshold Voltage (Vth), Subthreshold Slope (SS), and so on. After that, the abbreviation may be used on its own. Please check and apply this consistently throughout the text."	We thank the reviewer for this helpful suggestion. In response, we have thoroughly reviewed the manuscript and ensured that all abbreviations are introduced correctly at their first mention — with use the full term throughout the text for the subthreshold slope and threshold voltage.
8.	In the Results: The obtained results are interesting. However all Figure - need to be improved (the labeling is too small).	We sincerely thank the reviewer for the positive remark and for highlighting the issue regarding figure labeling. In response, we have revised **all figures in the Results section** to improve readability. Specifically, we have increased the font size of axis labels, legends, and annotations, and enhanced the overall resolution and clarity of the figures. These adjustments ensure that the figures are easier to interpret and meet the required publication standards.

9.	References: Please avoid using outdated references. References should be latest 5 years. Please check them and correct. It is recommended to use Mendeley desktop software for citating source of reference and preparing the bibliography since Mendeley Desktop enables for automatic update of correct journals/conference proceeding information details using DOI which is dedicated for each reference.	We thank the reviewer for this helpful suggestion. In response, we have carefully reviewed all references in the manuscript and removed or replaced those that were outdated (i.e., older than five years) with more recent and relevant studies published within the last five years. This update helps to better position our work within the current research landscape. Additionally, we have used **Mendeley Desktop** to manage citations and generate the bibliography, ensuring that the reference formatting is accurate and that all entries include the correct and complete metadata, including DOI numbers where available. We appreciate the reviewer's recommendation, which has contributed to improving the quality and consistency of our reference section.