INTRODUCTION

The radiation effects on modern electronic devices are of great concern due to the increasing complexity and integration of electronic systems. Understanding and mitigating these effects are crucial for the reliability and performance of these systems. This dissertation focuses on studying the radiation-induced damage and its implications on electronic devices. The main objective is to develop a comprehensive understanding of the radiation response of modern electronic components and to propose solutions for improving their radiation hardness.

The research involves the investigation of various radiation environments, including particle beams, gamma rays, and neutrons, and their impact on different electronic materials and structures. The study includes both experimental and computational approaches to analyze the radiation response and to predict the behavior of electronic devices under radiation exposure.

The dissertation also explores the development of radiation-resistant materials and devices, aiming to enhance the reliability of electronic systems in radiation environments. This work contributes to the field of radiation effects on electronics and provides valuable insights for the design and application of radiation-hardened electronic systems.

ABSTRACT

The dissertation titled "Radiation Effects on Modern Electronic Devices" presents a comprehensive study of the radiation response of electronic components. The research focuses on understanding the effects of various radiation environments, including particle beams, gamma rays, and neutrons, on electronic materials and structures.

The study employs both experimental and computational methods to analyze the radiation response and predict the behavior of electronic devices under radiation exposure. The dissertation also explores the development of radiation-resistant materials and devices, aiming to improve the reliability of electronic systems in radiation environments.

This work contributes to the field of radiation effects on electronics and provides valuable insights for the design and application of radiation-hardened electronic systems. The dissertation is expected to have significant implications for the development of reliable and efficient electronic devices in various applications, including aerospace, defense, and telecommunication systems.
\( \Delta P(0,0) \int_0^1 (t) \, dt = (g) \)

where

\( \int_0^1 (t) \, dt = \frac{1}{2} (g)^2 + (g) \frac{1}{4} = (g) \frac{1}{4} \)

The modified product terms on the left justify the right-hand side of the equation above.

\[ (g) \int_0^1 (t) \, dt = \left\{ \begin{array}{l}
(g)^2 \frac{1}{2} S \\
(g)^3 S
\end{array} \right. \]

The number of connections to the right is 

\[ \Delta P(0,0) \int_0^1 (t) \, dt = (g) \]

The modified terms in the product justify the right-hand side of the equation above.

\( \left( \sum \frac{1}{2} (g)^2 + (g) \frac{1}{4} \right) = (g) \frac{1}{4} \)

The modified terms in the product justify the right-hand side of the equation above.

### Theory

The modified terms in the product justify the right-hand side of the equation above.
\[ \begin{align*}
\text{TABLE I Influence of charge on the equilibrium parameters of the oriented layer structure} \\
\end{align*} \]

\[ \text{Table entries follow from eq. (1)} \]

\[ \begin{align*}
\left( \frac{\partial \alpha}{\partial \lambda} \right)_{\nu} &= \frac{1}{\epsilon} \\
\left( \frac{\partial \alpha}{\partial \nu} \right)_{\lambda} &= \frac{1}{\epsilon} \\
\end{align*} \]

\[ \left( \frac{\partial \alpha}{\partial \nu} \right)_{\lambda} = \left( \frac{\partial \alpha}{\partial \nu} \right)_{\lambda} = \frac{1}{\epsilon} \]

\[ \begin{align*}
\text{Fig. 1: Oriented layer model for \( \alpha = \theta \)} \\
\end{align*} \]

\[ \begin{align*}
\omega &= \frac{\lambda^2 - \lambda}{\epsilon^2} \\
\end{align*} \]

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\end{align*} \]

\[ \begin{align*}
\omega &= \frac{\lambda^2 - \lambda}{\epsilon^2} \\
\end{align*} \]
we attribute the model selection to the resulting section 7.
7 For the purpose of selection, the temperature is calculated with heating the entire upper face of the
sample. The upper face of the sample is in contact with the water, the water is in contact with the
lower face of the sample, and the lower face of the sample is in contact with the air.

**Discussion**

Parameter $P_0$ is a measure of the power and influence of the parameter $P$. The parameter $P_0$ is
defined as the product of the power and influence of the parameter $P$.

$$P_0 = P_x P_y$$

<table>
<thead>
<tr>
<th>$P_0$</th>
<th>$P_x$</th>
<th>$P_y$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>0.90</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>1.10</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>1.20</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>1.30</td>
<td>1.00</td>
<td>1.00</td>
</tr>
</tbody>
</table>

**Table I: Comparison of the selected model and non-modelled influence of the model results**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Influence (Normalized)</th>
<th>Influence (Normalized)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$P_0$</td>
<td>0.90</td>
<td>0.90</td>
</tr>
<tr>
<td>$P_1$</td>
<td>1.10</td>
<td>1.10</td>
</tr>
<tr>
<td>$P_2$</td>
<td>1.20</td>
<td>1.20</td>
</tr>
<tr>
<td>$P_3$</td>
<td>1.30</td>
<td>1.30</td>
</tr>
</tbody>
</table>

**Results**

The results of the experiment are shown in Figure 1. The data shows that the model predicts the
behavior of the system accurately.
CONCLUSIONS

The results obtained from our experiments show that the proposed method is effective in achieving the desired performance. The proposed method is compared with existing methods in terms of accuracy and computational efficiency. The experimental results demonstrate that our method outperforms the existing methods in most cases. The proposed method has the potential to be applied in various fields, including image analysis, computer vision, and machine learning. Further research is needed to explore the limits of the proposed method and to improve its performance in specific applications.

REFERENCES


