

Introduction to LaTeX

Blog System Demo

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Abstract

This is a sample LaTeX document demonstrating various features including mathematical equations, formatting, and document structure.

1 Introduction

LaTeX is a typesetting system widely used for scientific and technical documents. It excels at rendering mathematical notation.

2 Mathematics

2.1 Inline Math

Einstein's famous equation $E = mc^2$ shows mass-energy equivalence. The quadratic formula is $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$.

2.2 Display Math

The Gaussian integral:

$$\int_{-\infty}^{\infty} e^{-x^2} dx = \sqrt{\pi} \tag{1}$$

Maxwell's equations in differential form:

$$\nabla \cdot \mathbf{E} = \frac{\rho}{\epsilon_0} \quad (2)$$

$$\nabla \cdot \mathbf{B} = 0 \quad (3)$$

$$\nabla \times \mathbf{E} = -\frac{\partial \mathbf{B}}{\partial t} \quad (4)$$

$$\nabla \times \mathbf{B} = \mu_0 \mathbf{J} + \mu_0 \epsilon_0 \frac{\partial \mathbf{E}}{\partial t} \quad (5)$$

3 Lists and Formatting

- First item with **bold text**
 - Second item with *italic text*
 - Third item with `monospace text`
1. Numbered item one
 2. Numbered item two
 3. Numbered item three

4 Conclusion

LaTeX provides excellent control over document formatting and is particularly powerful for technical and scientific writing.