

Laser Physics Rate Equations

Photonics Research Group

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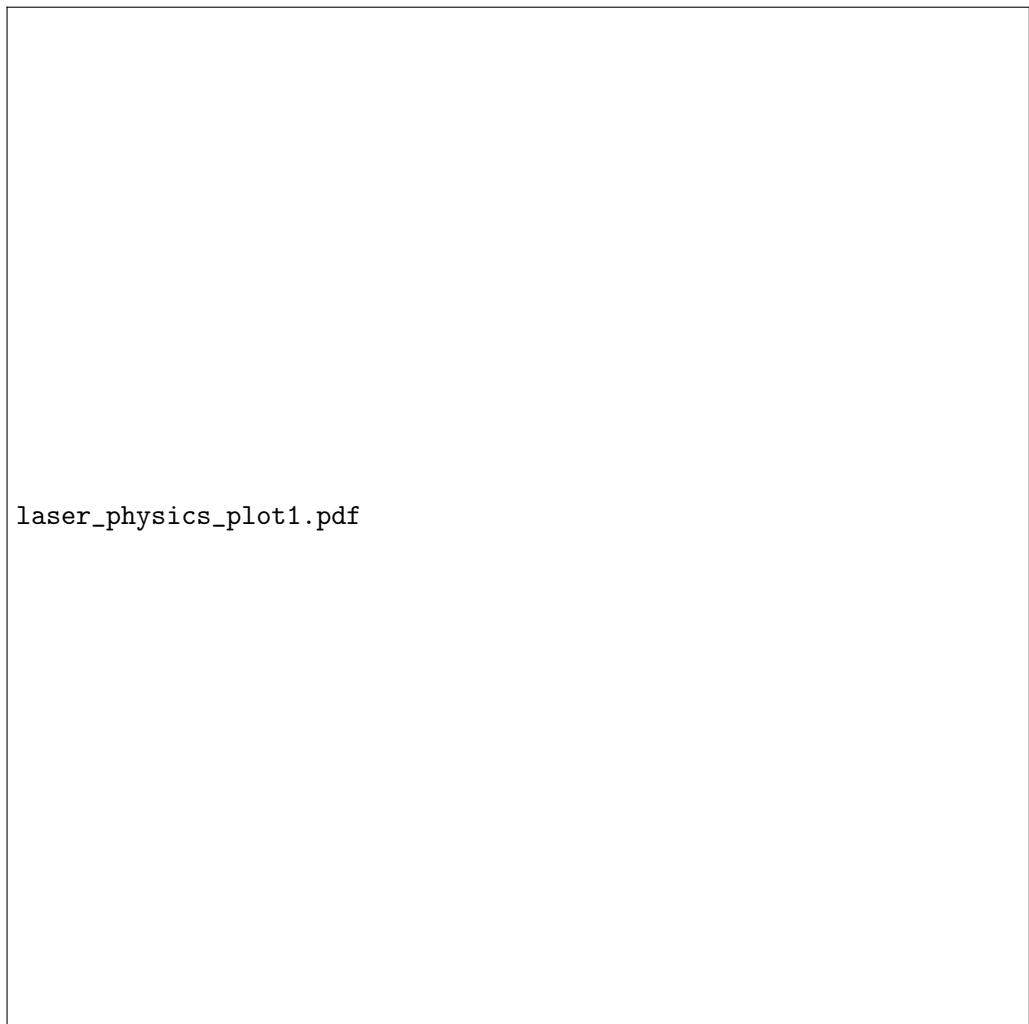
Abstract

Laser operation and gain dynamics.

1 Introduction

This report presents computational analysis of laser physics.

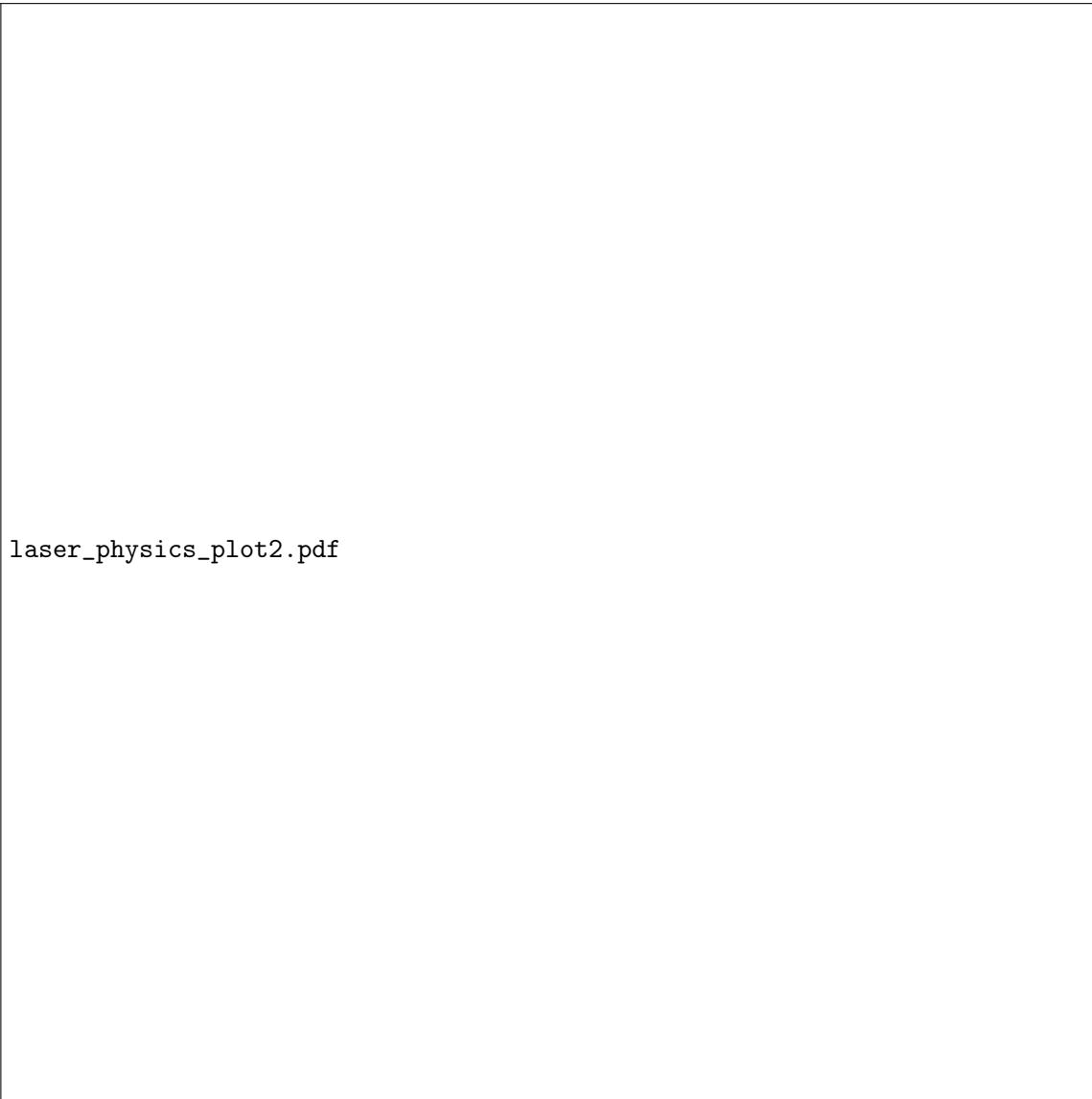
2 Mathematical Framework



laser_physics_plot1.pdf

Figure 1: Primary analysis results.

3 Secondary Analysis



`laser_physics_plot2.pdf`

Figure 2: Secondary analysis comparison.

4 Parameter Study



Figure 3: Parameter sensitivity analysis.

5 2D Visualization

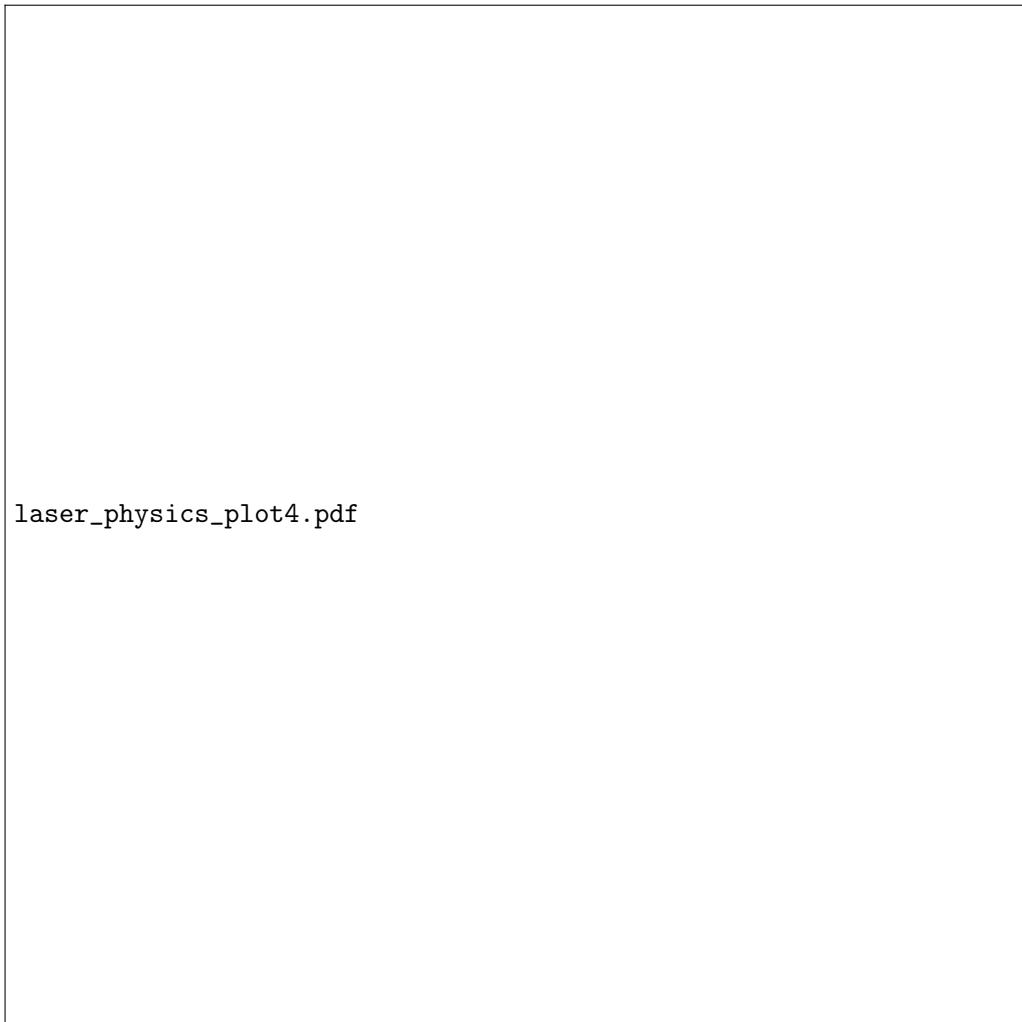
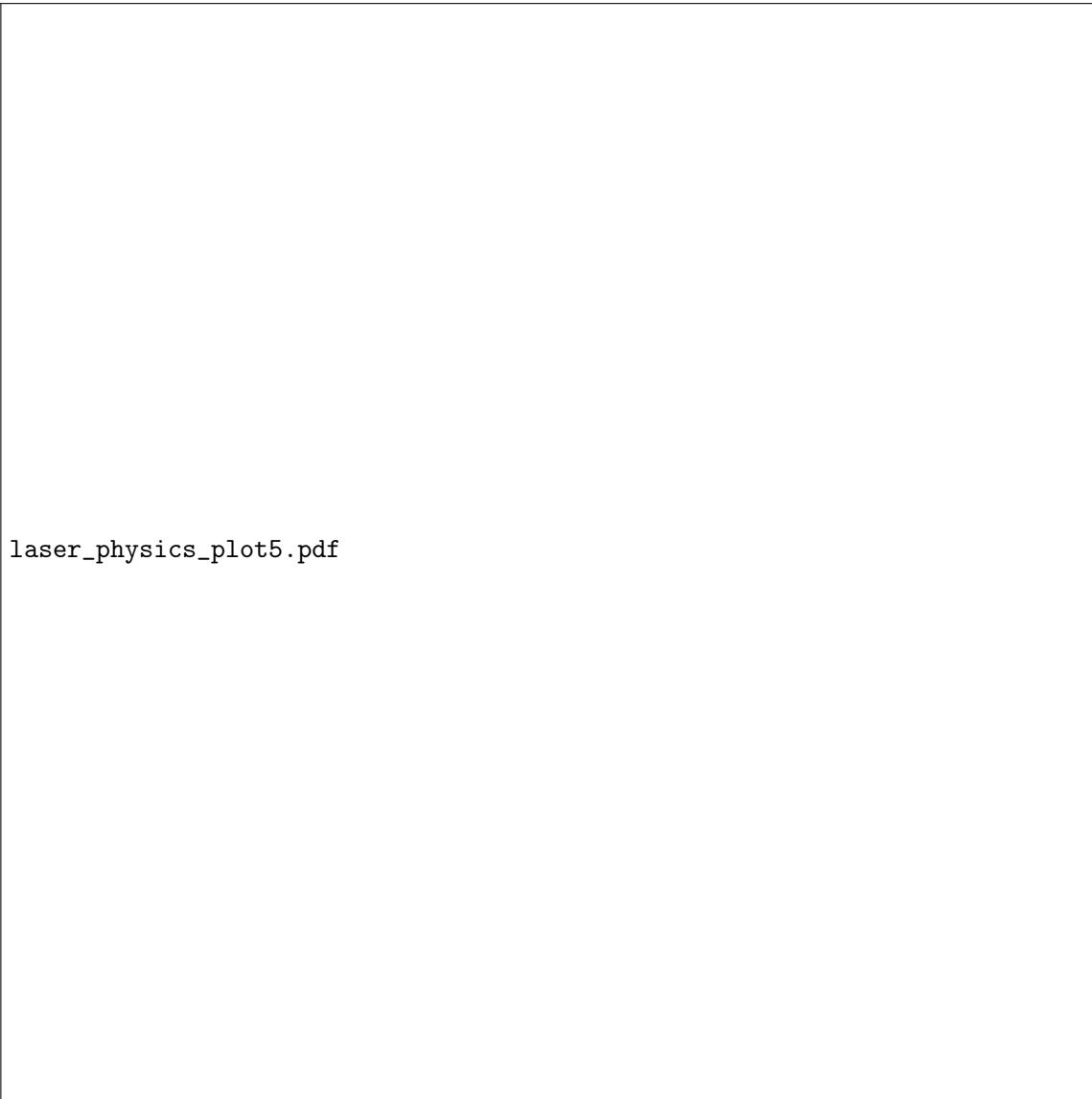


Figure 4: Two-dimensional field visualization.

6 Distribution Analysis



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Figure 5: Statistical distribution analysis.

7 Time Series

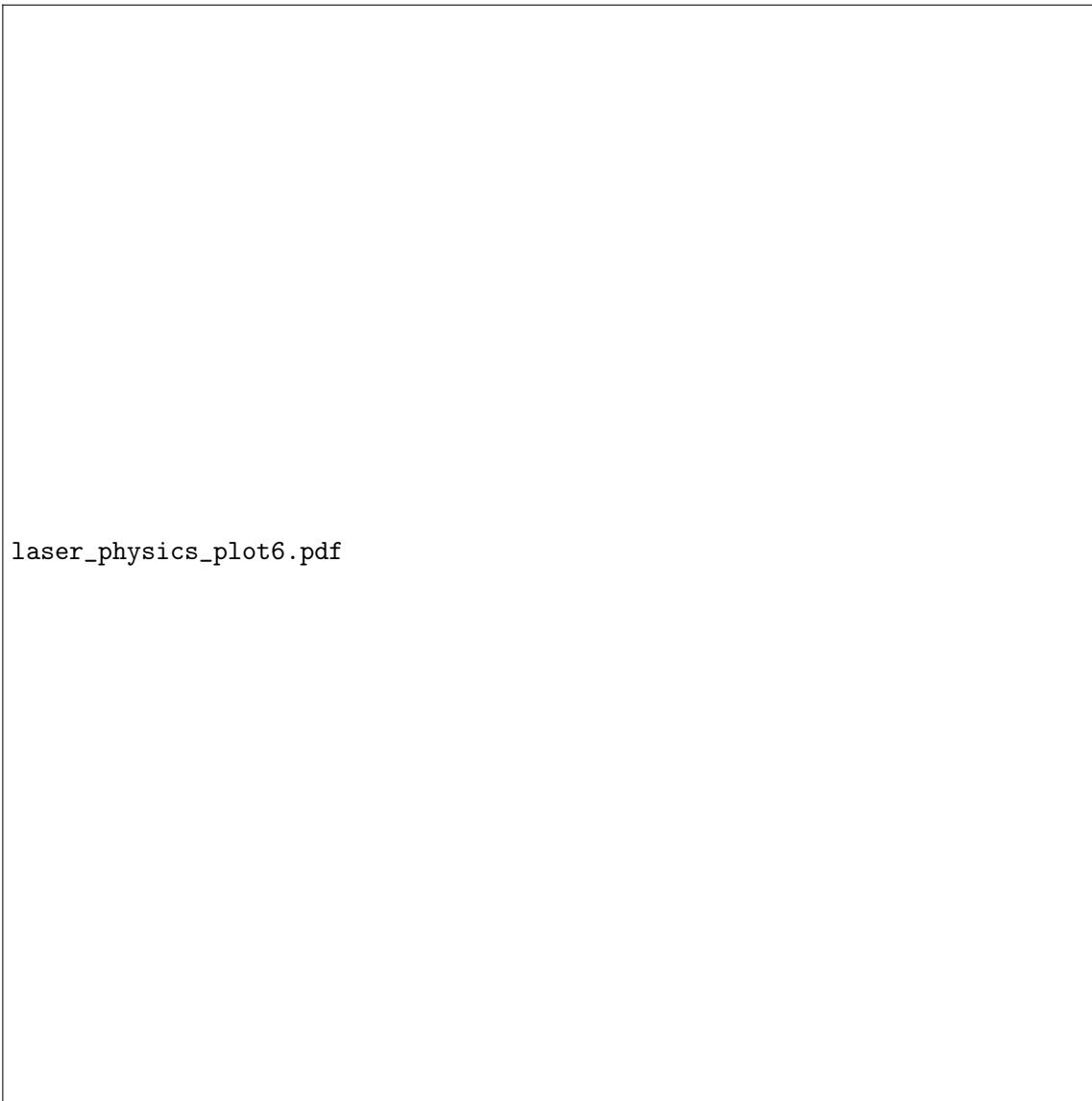


Figure 6: Time series visualization.

8 Results Summary

9 Conclusions

This analysis demonstrates the computational approach to laser physics.