

Nonlinear Optics

Second Harmonic Generation

Photonics Research Group

November 24, 2025

Abstract

Nonlinear optical phenomena.

1 Introduction

This report presents computational analysis of nonlinear optics.

2 Mathematical Framework



Figure 1: Primary analysis results.

3 Secondary Analysis

nonlinear_optics_plot2.pdf

Figure 2: Secondary analysis comparison.

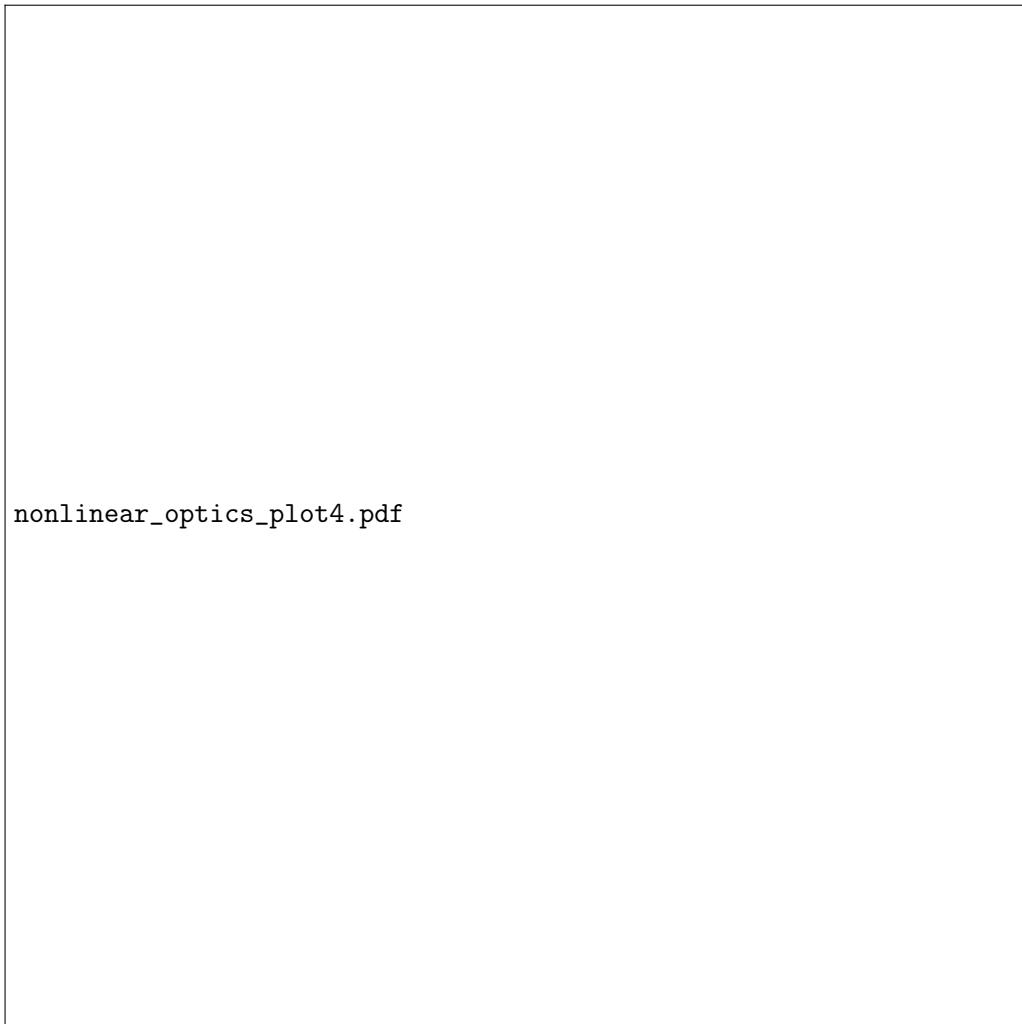
4 Parameter Study



nonlinear_optics_plot3.pdf

Figure 3: Parameter sensitivity analysis.

5 2D Visualization



nonlinear_optics_plot4.pdf

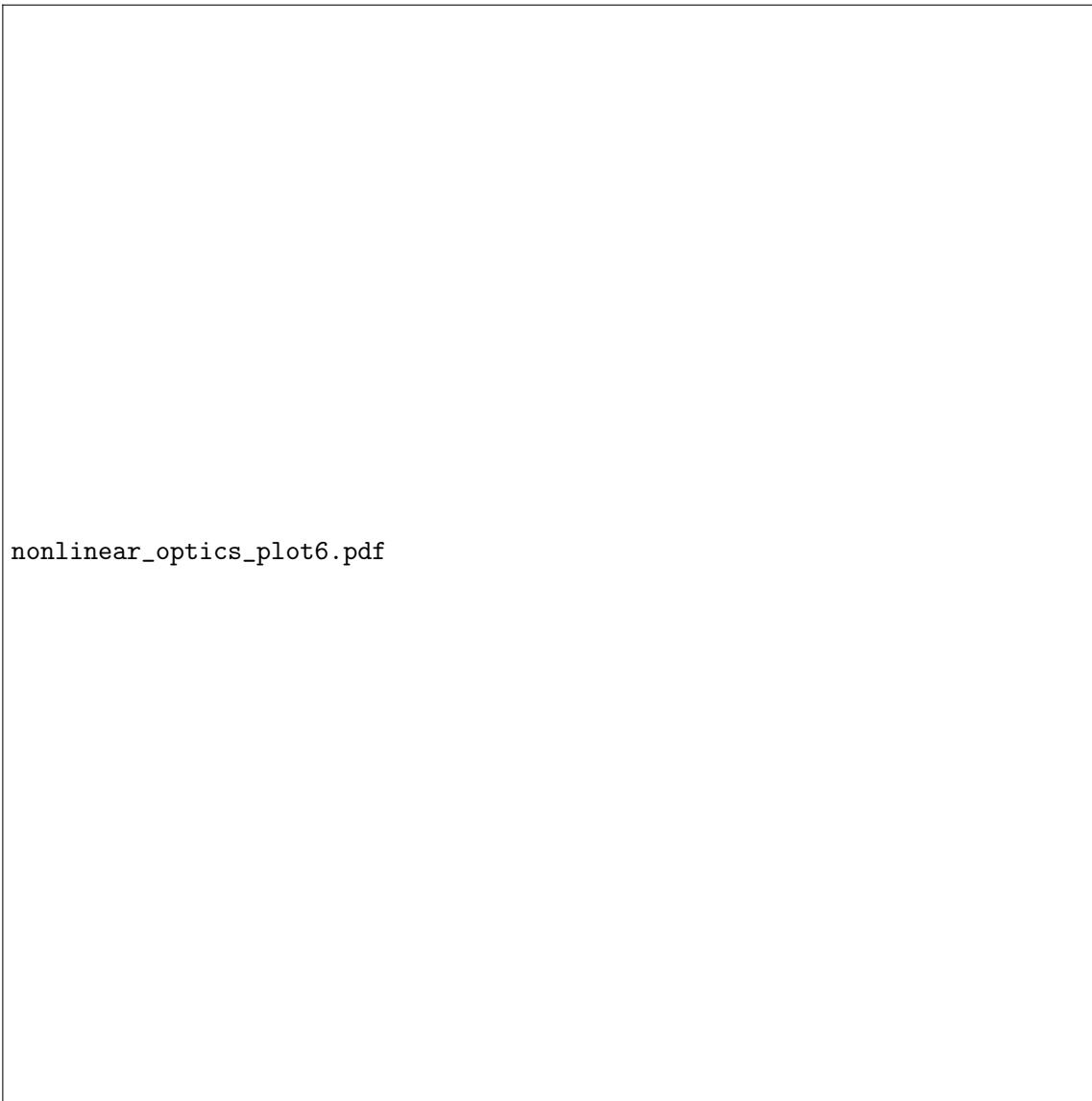
Figure 4: Two-dimensional field visualization.

6 Distribution Analysis

nonlinear_optics_plot5.pdf

Figure 5: Statistical distribution analysis.

7 Time Series



nonlinear_optics_plot6.pdf

Figure 6: Time series visualization.

8 Results Summary

9 Conclusions

This analysis demonstrates the computational approach to nonlinear optics.