Ludwig-Maximilians-Universität
München

Bachelors Thesis

The role of excited atomic states in multiphoton ionization

Johannes Porsch

March 28, 2025

Abstract

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2. Theory

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$$\partial_t u = \mathcal{H}(t)\lambda \tag{2.1}$$

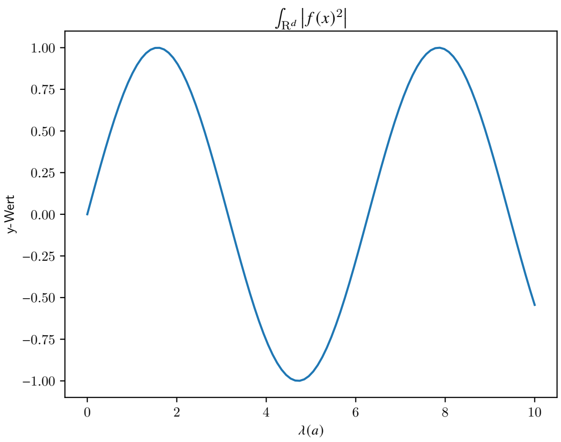

Figure 2.1: Sine function

2.1 Basic Formalism

Basic Definitions of schröfinger qe, light dyson series, and sotrong field s matrix

2.2 Strong Field Approximation

clear defintition of the strong field approximation, and the assumptions that are made.

2.3 Strong Field Ionization

Derivation of

$$\lim_{t\to\infty} |\Psi(t)\rangle = -i \int d^3p \; |\mathbf{p}\rangle \int_{-\infty}^{\infty} dt'\, e^{-\frac{i}{2}\int_{t'}^{\infty} [\mathbf{p}+\mathbf{A}(t')]^2\, dt'} e^{iI_\mathrm{p}t'} \langle \mathbf{p} + \mathbf{A}(t')|\hat{\mathbf{d}} \cdot \mathbf{E}(t')|\Psi_0\rangle \tag{2.2}$$

2.4 Multiphoton Ionization

Different types of Ionization, tunneling Ionization, multiphoton

3. Conclusion

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$$\partial \mathbf{A} = \mathfrak{B}$$

$$\int_{\mathbb{R}^d} |f(x)|^2 \,\mathrm{d}x = \int_{\mathbb{R}^d} |\mathcal{F} f(\xi)|^2 \,\mathrm{d}\xi \tag{3.1}$$

$$\mathrm{i}\partial_t u = \mathcal{H}(t)\, |a\rangle\, \lambda \tag{3.2}$$

for this calculation [1] was used

A. Appendix A

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B. Appendix B

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Bibliography

[1] Seung Beom Park, Kyungseung Kim, Wosik Cho, Sung In Hwang, Igor Ivanov, Chang Hee Nam, and Kyung Taec Kim. Direct sampling of a light wave in air. *Optica*, 5(4):402–408, Apr 2018.