Dirac and Majorana Mass

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Overview of the Talk

Introduction

Motivation | Mass

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  - Basics of quantum harmonic oscillator using a $a^\dagger$

Prerequisites

- I'll use the following pauli matrices

$$\sigma^1 = \begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix}$$

$$\sigma^2 = \begin{pmatrix} 0 & -i \\ i & 0 \end{pmatrix}$$

$$\sigma^3 = \begin{pmatrix} 1 & 0 \\ 0 & -1 \end{pmatrix}$$

- Terminology from particle physics
  - Leptons: Eg. Electron, Electron Neutrino
  - Quarks

Towards a quantum theory of fields

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- Conclusion: Parameter m is mass

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