

# Théorie Quantique des Champs dans le Cadre T0

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# Chapitre 1

## Théorie Quantique des Champs

### 1.1 Introduction

La théorie quantique des champs (QFT) est le cadre théorique qui combine la mécanique quantique et la relativité restreinte. La théorie T0 étend ce cadre en introduisant le champ  $\xi$ .

### 1.2 Champs et Particules

En QFT, les particules sont des excitations de champs quantiques :

$$\phi(x) = \int \frac{d^3 p}{(2\pi)^3} \frac{1}{\sqrt{2E_p}} (a_p e^{-ipx} + a_p^\dagger e^{ipx}) \quad (1.1)$$

title

Le champ  $\xi$  modifie cette relation :

$$\phi_\xi(x) = \phi(x) \cdot f(\xi) \quad (1.2)$$

où  $f(\xi)$  encode les corrections dues à la dualité temps-masse.

### 1.3 Diagrammes de Feynman

Les calculs de Feynman dans le cadre T0 incluent des corrections  $\xi$  :

1. Propagateurs modifiés
2. Vertex avec facteurs  $\xi$
3. Renormalisation simplifiée

### 1.4 Le Modèle Standard et au-delà

La théorie T0 suggère des extensions du Modèle Standard :

- Unification des forces fondamentales
- Explication de la hiérarchie des masses
- Résolution du problème de naturalité

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