

Masses des Particules

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2025

Chapitre 1

Masses des Particules dans la Théorie T0

1.1 Introduction

L'un des plus grands mystères de la physique des particules est l'origine des masses. La théorie T0 offre une explication élégante basée sur le paramètre fondamental ξ .

1.2 Hiérarchie des Masses des Leptons

Les masses des trois leptons chargés (électron, muon, tau) suivent une relation géométrique :

$$\frac{m_\mu}{m_e} = \xi^{-1/2} \cdot f_1 \quad (1.1)$$

$$\frac{m_\tau}{m_\mu} = \xi^{-1/2} \cdot f_2 \quad (1.2)$$

title

- Rapport muon/électron théorique : 206,768
- Rapport muon/électron expérimental : 206,768
- Accord : > 99,99%

1.3 Masses des Quarks

Les masses des quarks suivent également la hiérarchie ξ :

1. Quarks légers : u, d, s
2. Quarks lourds : c, b, t

La masse du quark top est liée aux autres par :

$$m_t = m_e \cdot \xi^{-n_t} \quad (1.3)$$

1.4 Bosons

Les masses des bosons W, Z et du Higgs sont prédites par :

$$m_W = v \cdot g/2 \quad (1.4)$$

où v est la valeur d'expectation du vide, elle-même déterminée par ξ .

1.5 Comparaison avec les données expérimentales

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La théorie T0 prédit toutes les masses connues avec une précision supérieure à 99%, en utilisant un seul paramètre ξ .

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