

# QM, QFT und Relativitätstheorie in T0

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# Kapitel 1

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## **Zusammenfassung**

Die T0-Theorie bietet einen einheitlichen Rahmen, der Quantenmechanik (QM), Quantenfeldtheorie (QFT) und Relativitätstheorie (RT) verbindet. Dieses Dokument untersucht die Beziehungen zwischen diesen fundamentalen Theorien im T0-Framework.

# 1.1 Die drei Säulen der modernen Physik

## 1.1.1 Quantenmechanik

Die QM beschreibt Phänomene auf atomarer Skala:

$$i\hbar \frac{\partial}{\partial t} |\psi\rangle = \hat{H} |\psi\rangle \quad (1.1)$$

## 1.1.2 Quantenfeldtheorie

Die QFT vereint QM mit spezieller Relativität:

$$\mathcal{L} = \bar{\psi}(i\gamma^\mu \partial_\mu - m)\psi \quad (1.2)$$

## 1.1.3 Allgemeine Relativitätstheorie

Die ART beschreibt Gravitation als Raumzeitkrümmung:

$$G_{\mu\nu} = 8\pi G T_{\mu\nu} \quad (1.3)$$

# 1.2 T0-Vereinheitlichung

## 1.2.1 Das verbindende Element

In T0 verbindet das intrinsische Zeitfeld alle drei Theorien:

### T0 als Vereinheitlichung

$$\begin{aligned} \text{QM: } & T \cdot E = 1 \text{ (Unschärfe)} \\ \text{QFT: } & \mathcal{L}_{T0} = \mathcal{L}_{SM} + T\text{-Feld} \\ \text{RT: } & g_{\mu\nu} \sim T_{\mu\nu}^{\text{Zeit}} \end{aligned} \quad (1.4)$$

## 1.2.2 Emergenz aus einem Prinzip

Alle drei Theorien emergieren aus der Zeit-Masse-Dualität:

$$T \cdot m = 1 \quad (1.5)$$

Eine Theorie für alles?

Die T0-Theorie zeigt, dass QM, QFT und RT keine separaten Theorien sind, sondern verschiedene Aspekte einer einzigen fundamentalen Struktur: der Zeit-Masse-Dualität.

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