

# Markov-Prozesse in der T0-Theorie

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# Kapitel 1

## Markov-Prozesse in der T0-Theorie

## **Zusammenfassung**

Markov-Prozesse spielen eine wichtige Rolle in der statistischen Physik. Dieses Dokument untersucht, wie die T0-Theorie stochastische Prozesse und ihre Verbindung zum intrinsischen Zeitfeld interpretiert.

## 1.1 Markov-Prozesse

### 1.1.1 Definition

Ein Markov-Prozess erfüllt:

$$P(X_{n+1}|X_n, X_{n-1}, \dots, X_0) = P(X_{n+1}|X_n) \quad (1.1)$$

Die Zukunft hängt nur vom aktuellen Zustand ab, nicht von der Geschichte.

### 1.1.2 Übergangsraten

Die Mastergleichung:

$$\frac{dp_i}{dt} = \sum_j (W_{ij}p_j - W_{ji}p_i) \quad (1.2)$$

## 1.2 T0-Interpretation

### 1.2.1 Zeitfeld und Stochastik

In der T0-Theorie entstehen stochastische Prozesse aus Fluktuationen des intrinsischen Zeitfeldes:

$$T(x, t) = \langle T \rangle + \delta T(x, t) \quad (1.3)$$

### 1.2.2 Quantenfluktuationen

Die Zeitfeld-Fluktuationen sind mit Quantenunschärfe verknüpft:

$$\langle (\delta T)^2 \rangle \sim \frac{\hbar}{E} \quad (1.4)$$

#### Stochastik aus Quantenmechanik

In der T0-Theorie sind Markov-Prozesse makroskopische Manifestationen von Quantenfluktuationen des intrinsischen Zeitfeldes.

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