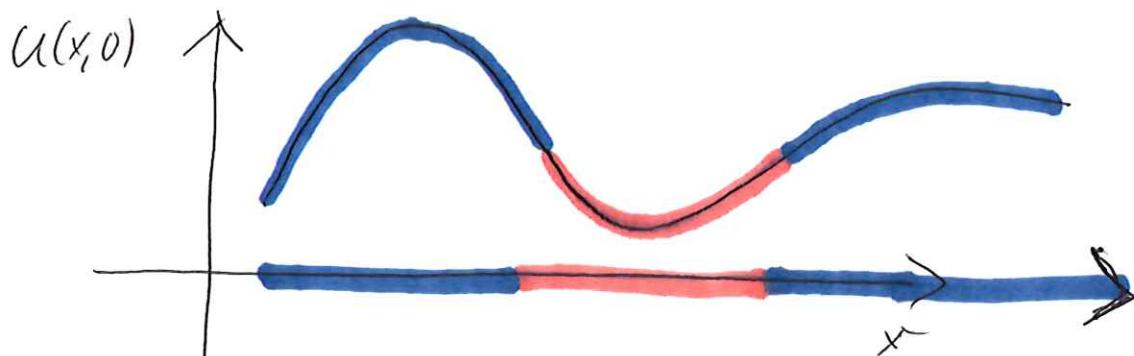


$$\dot{U} = \alpha U''$$



$$u(x, 0) = \sum_{i=1}^{\infty} c_i \frac{\sin(\omega_i x)}{\sqrt{\pi}}$$

$$u(x, t) = \sum_{i=1}^{\infty} c_i e^{-\omega_i^2 \alpha t} \frac{\sin(\omega_i x)}{\sqrt{\pi}}$$

$$c_i = \frac{1}{\sqrt{\pi}} \int_0^{2\pi} \sin(\omega_i x) \cdot u(x, 0) dx$$

$\omega_i \in \mathbb{Z}$
 $u(x, 0)$ gegeben

