ZUSTANDSGLEICHUNG

$$(\Delta + k^2)w = V(x)\,w;\quad x \in Q$$

$$w|_{G_1} = v \in U$$

$$w|_{G_2} = 0;\quad w|_{G_3} = 0$$

$$\lim_{R\to\infty}\left(\frac{\partial}{\partial R} - ik\right)w|_{G_R} = 0$$

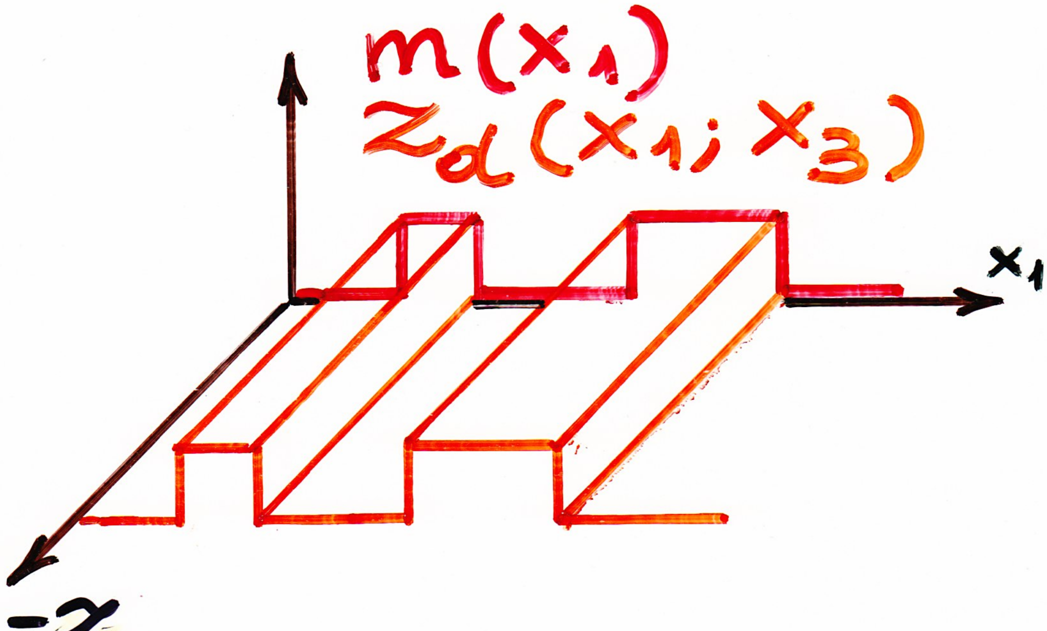
$$B: U \longrightarrow W$$
$$v \longmapsto w(v)$$

EINGANGS-ABBILDUNG
$(k^2 \notin \sigma_p(A))$

$$C: W \longrightarrow Y$$
$$w \longmapsto y := |w|^2_{Q_r}$$

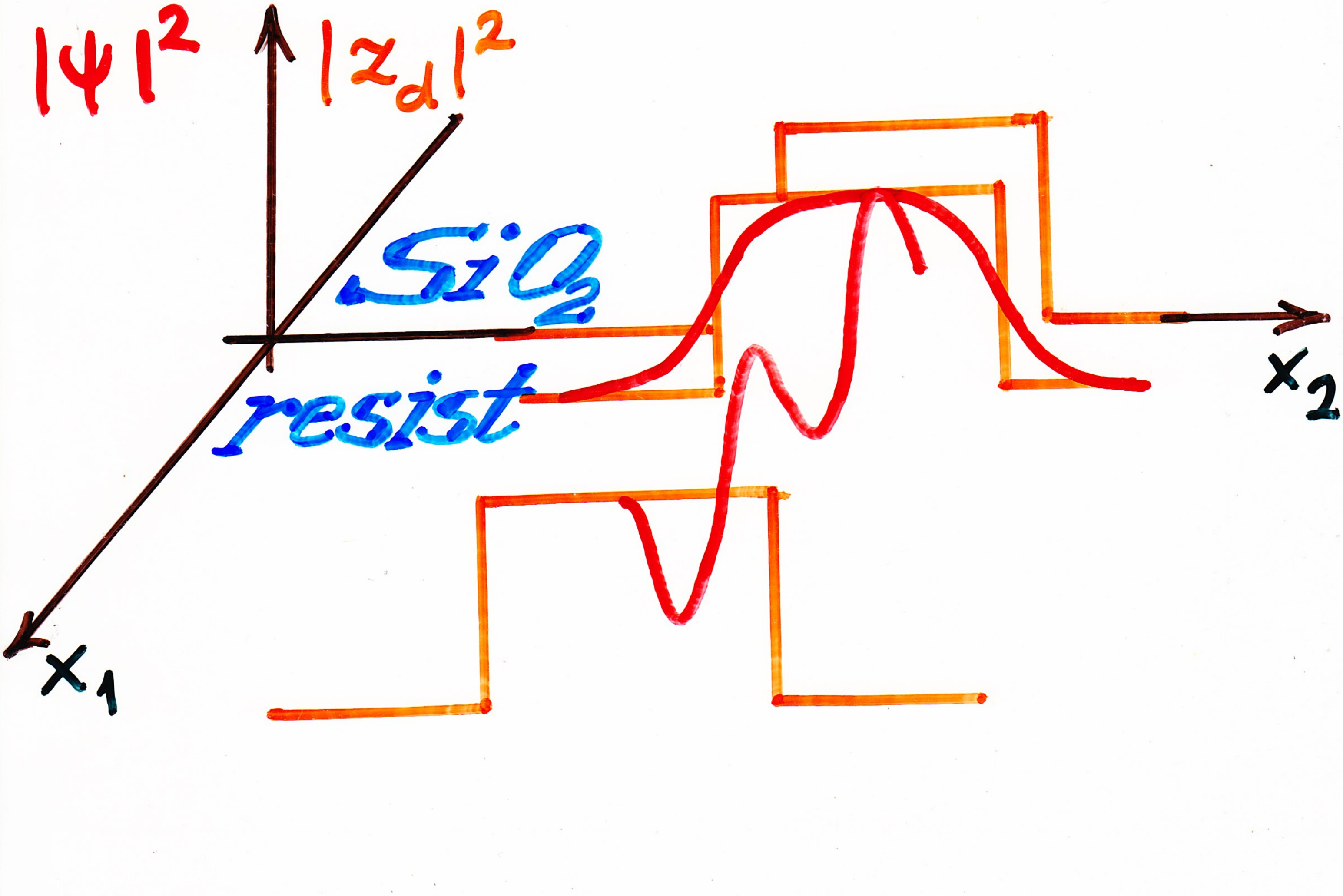
AUSGANGS-ABBILDUNG

BACKPROJECTION



DESIRED OUTPUT...

...AND THE ACTUAL ONE



ZIELFUNKTION

$$P(w;v) := \int_{Q_r} \left[|w|^2 - z_d \right]^2 dQ_r$$

$$E(v) := \| c(x) \cdot v \|^2_{U_{ad}}$$

$$J(v) = P(v) + E(v)$$

$$\exists \alpha > 0 \text{ s.t. } \| c(\cdot) v \|^2 \geq \alpha \| v \|^2 \quad \forall v \in U_{ad}$$

PROBLEM:

¿ $\exists u \in U_{ad}$ s.t. $J(u) = \inf\limits_{v \in U_{ad}} J(v)$