

# -Positronentrapping-

Einfangen von  $e^+$  im 1T-Magnet des AEGIS Experiments

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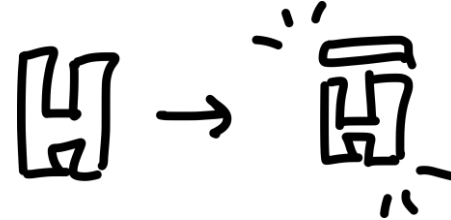


- › 1928  $e^+$  postuliert
- › gleiche Eigenschaften
- › invertierte Ladung
- › annihiliert mit Materieregegenstück

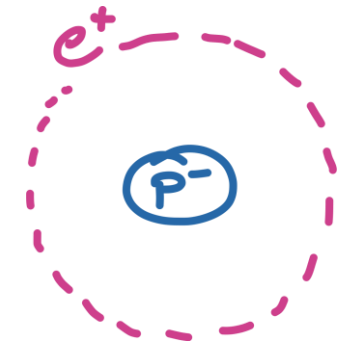
# -AEgIS-

(Antimatter Experiment: Gravity, Interferometry, Spectroscopy)

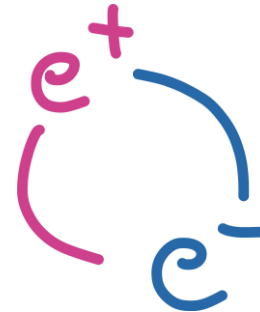
- › Teil der Experimente der Antimatterfactory
- › Gravitationswirkung auf Antimaterie bestimmen
- › Antiwasserstoff (Hbar)



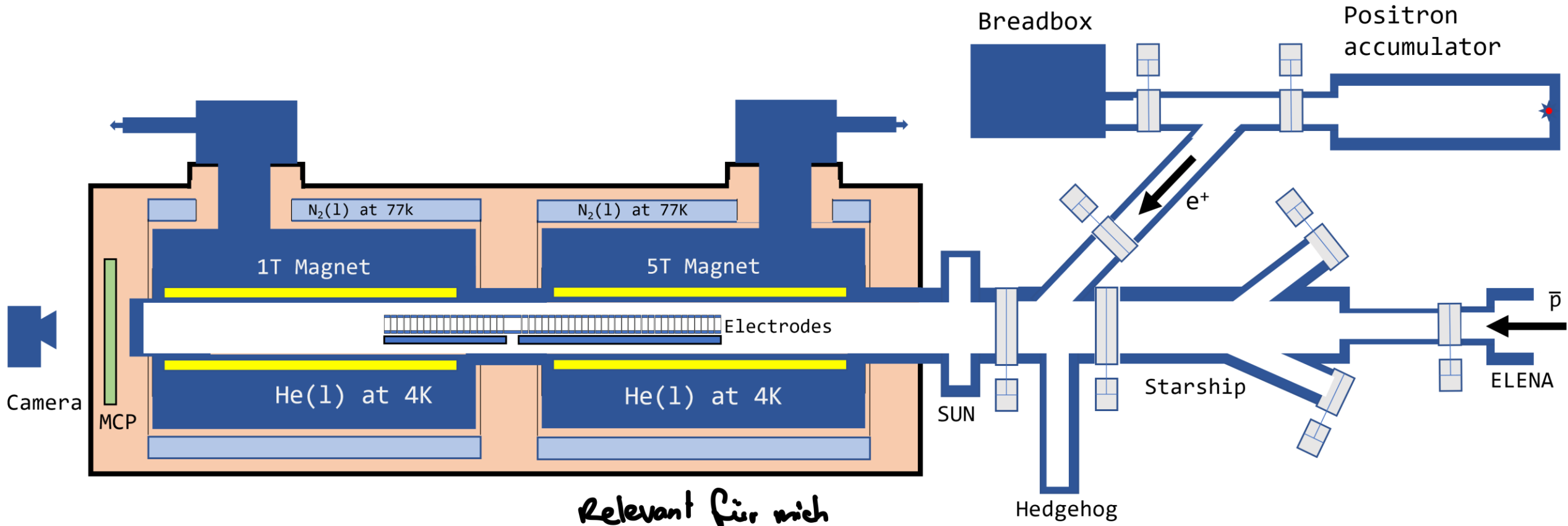
- › Hbar = Antiproton ( $p^-$ ) + Positron ( $e^+$ )



- › Bildung über Positronium (Ps)



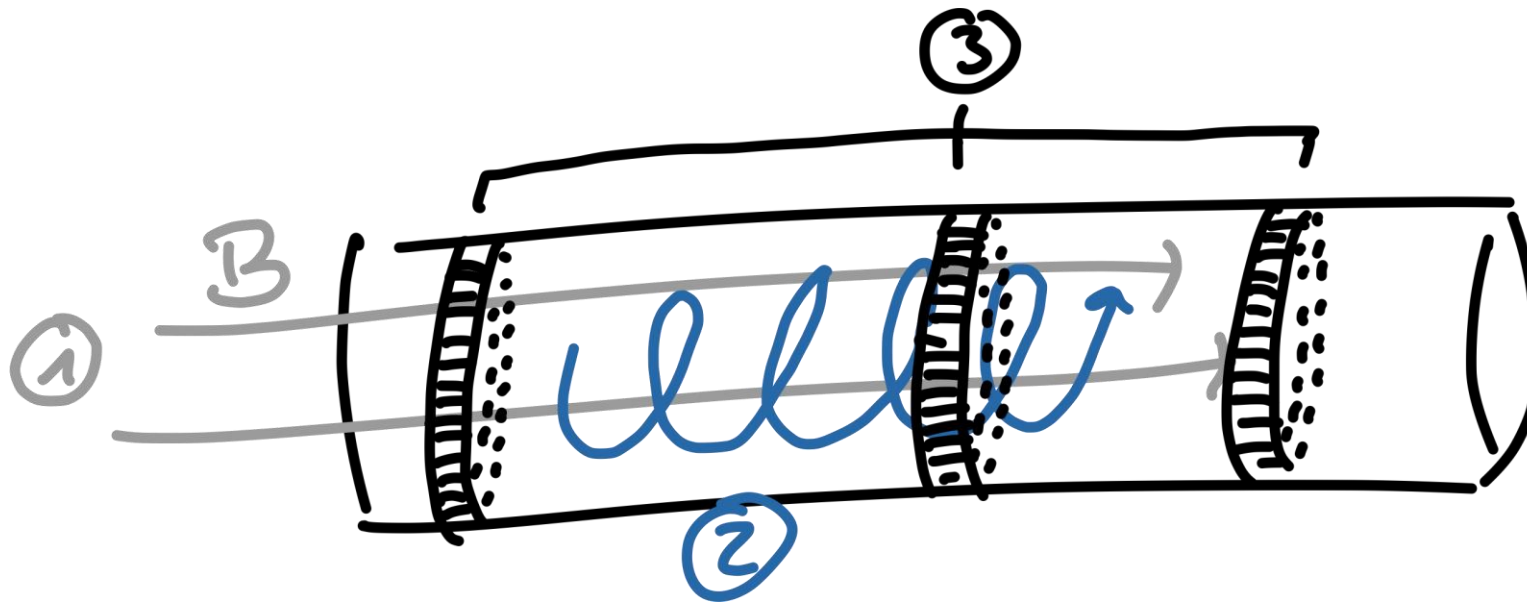
# -AEgIS



Relevant für mich

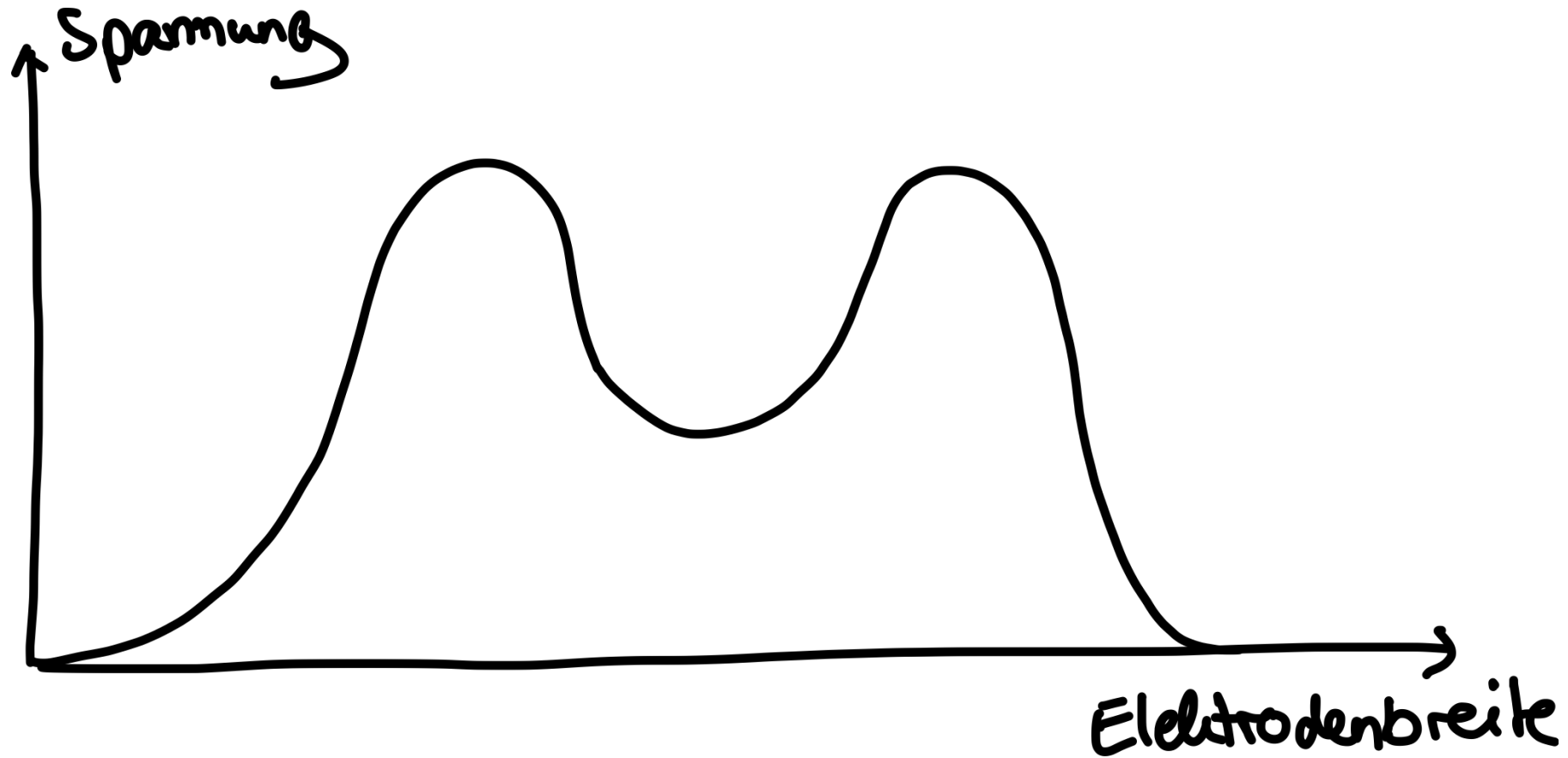


# -Mechanismus der Falle-

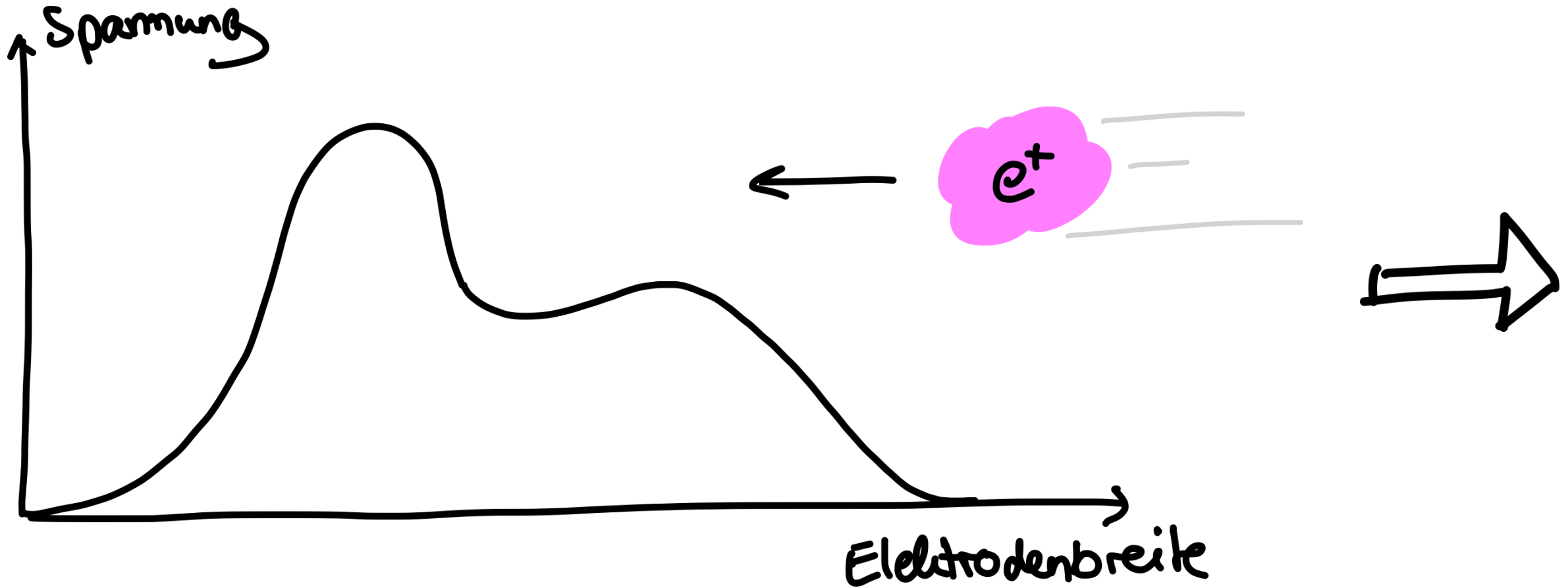


- 1) Magnetfeld
- 2)  $e^+$  Bewegung
- 3) Elektroden

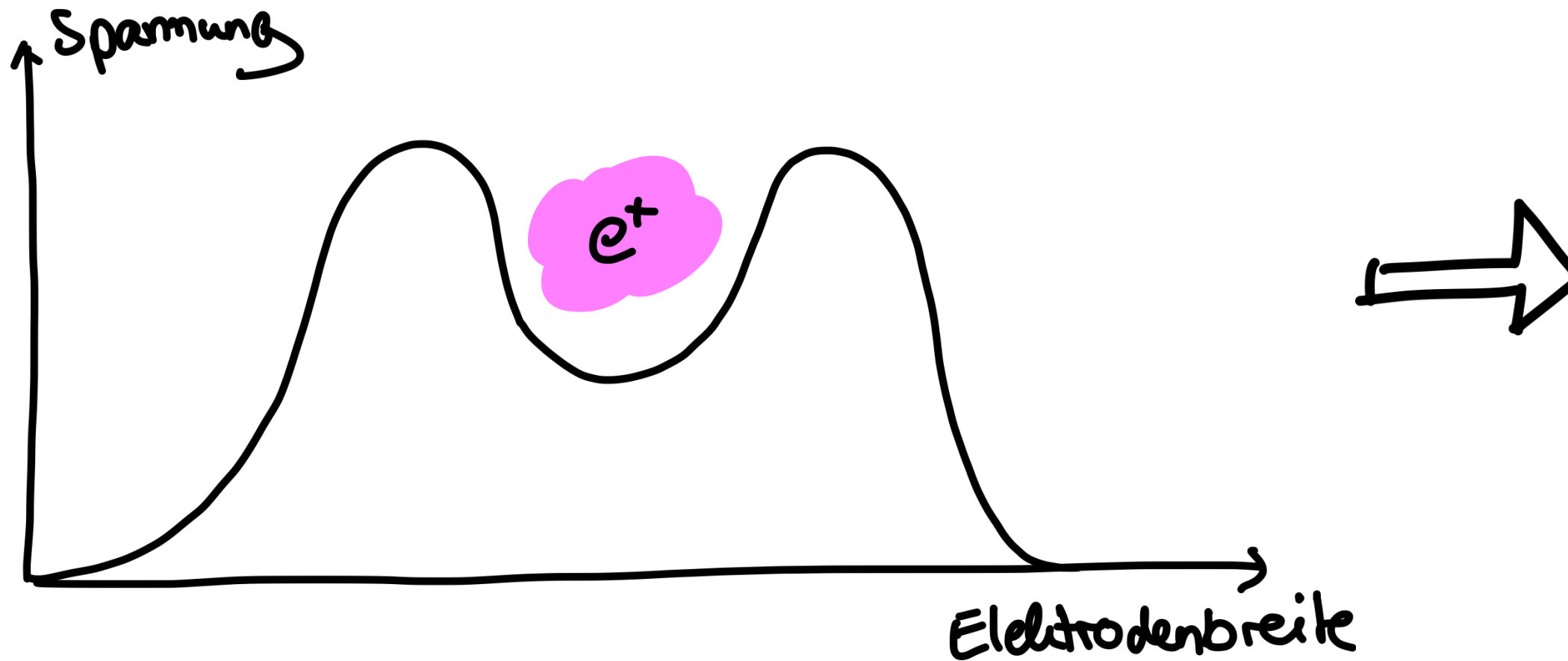
# -Ablauf-



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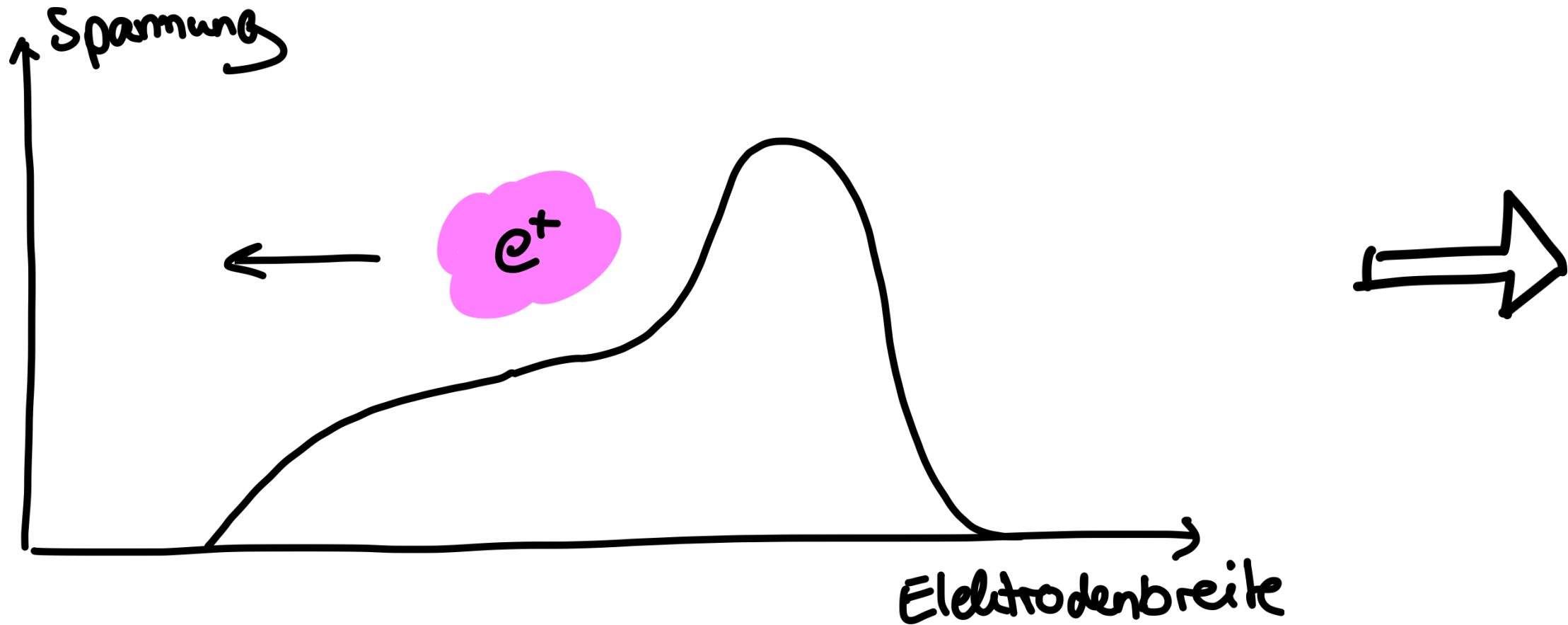


# -Ablauf-

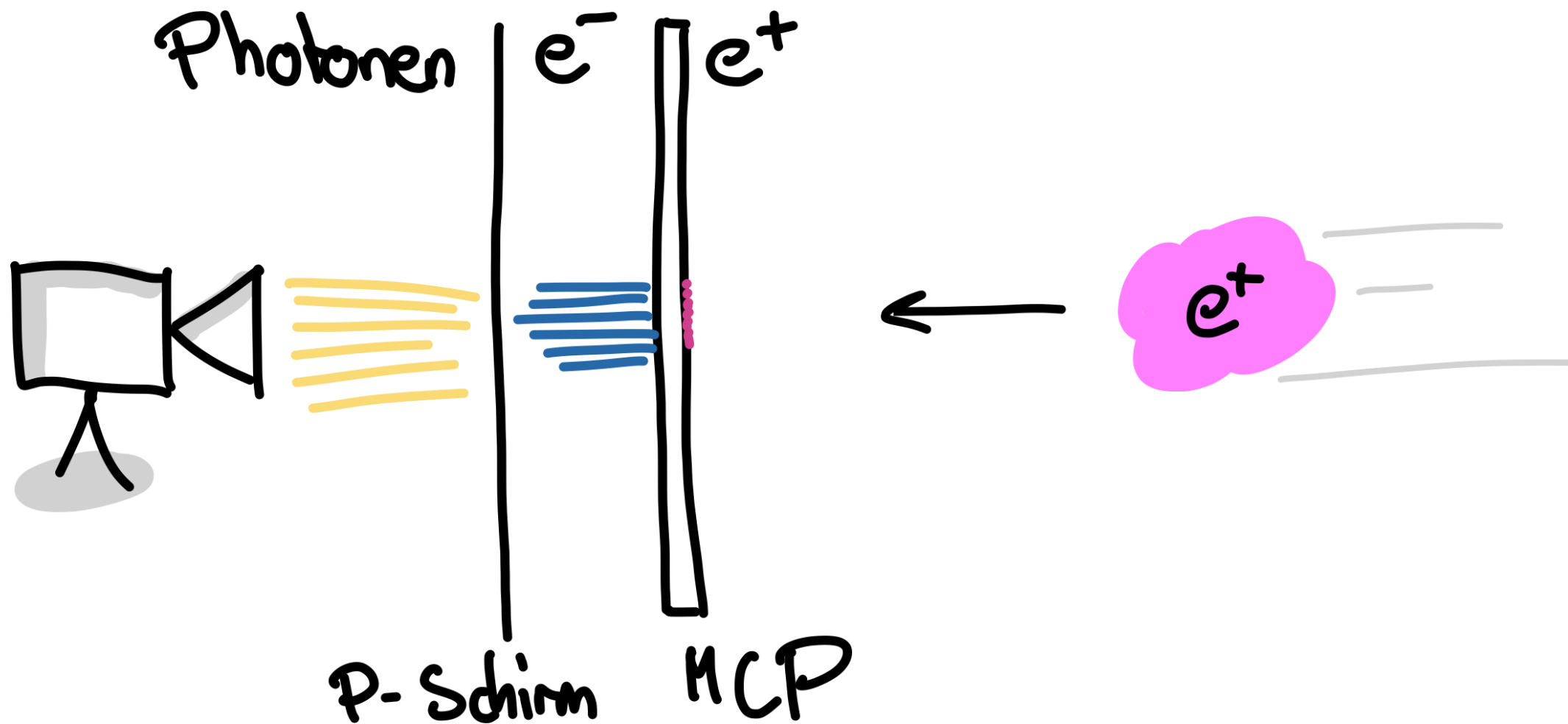




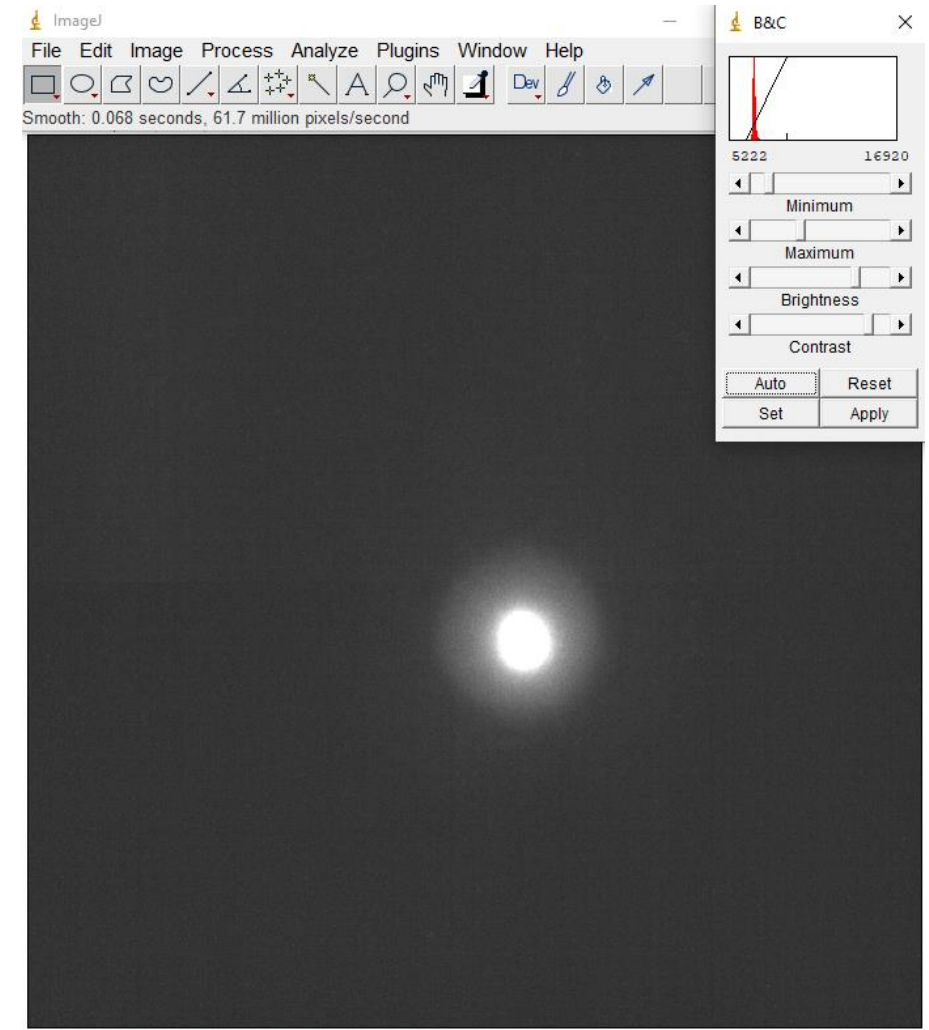
# -Ablauf-



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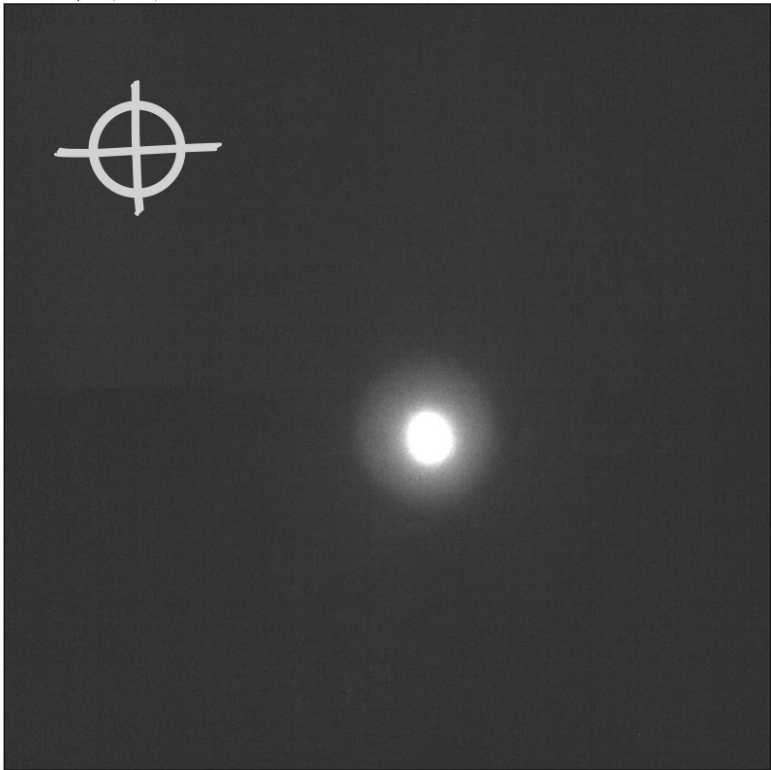
# -Kalibrierung-



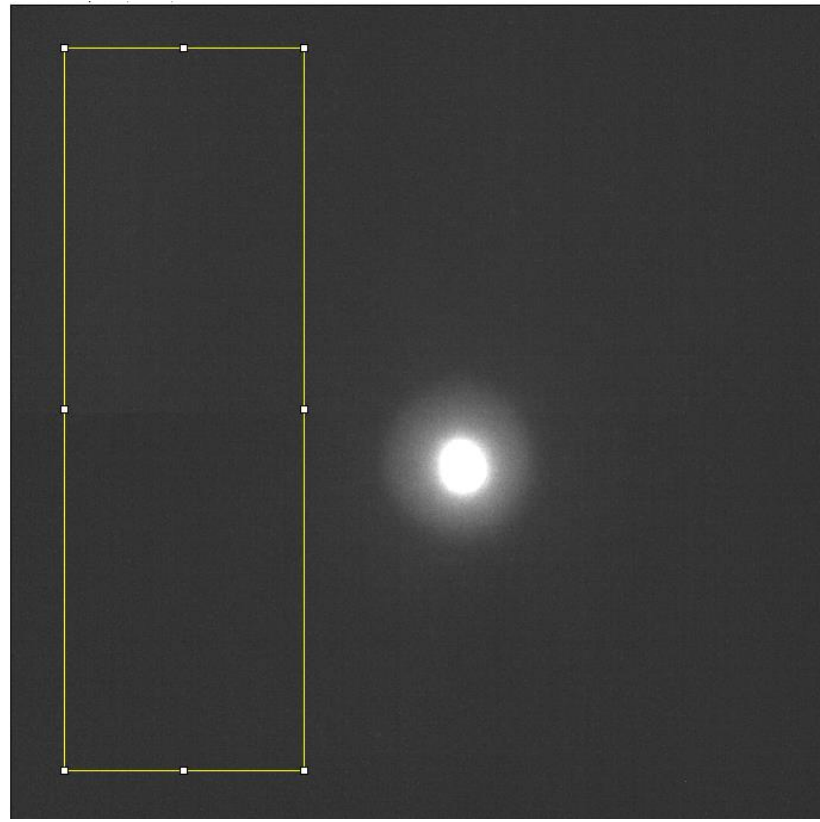
# -Kalibrierung-

x=468, y=669, value=7644

2048x2048 pixels; 16-bit; 8MB



Area	Mean	Min	Max	IntDen
1096254	7648.905	6990	8847	8385142748.000

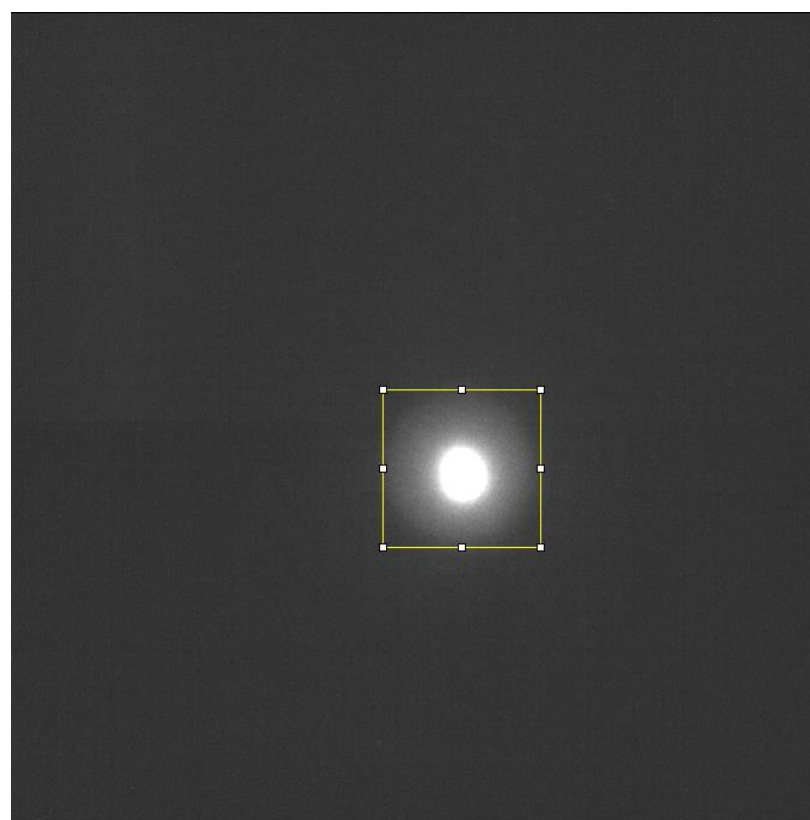
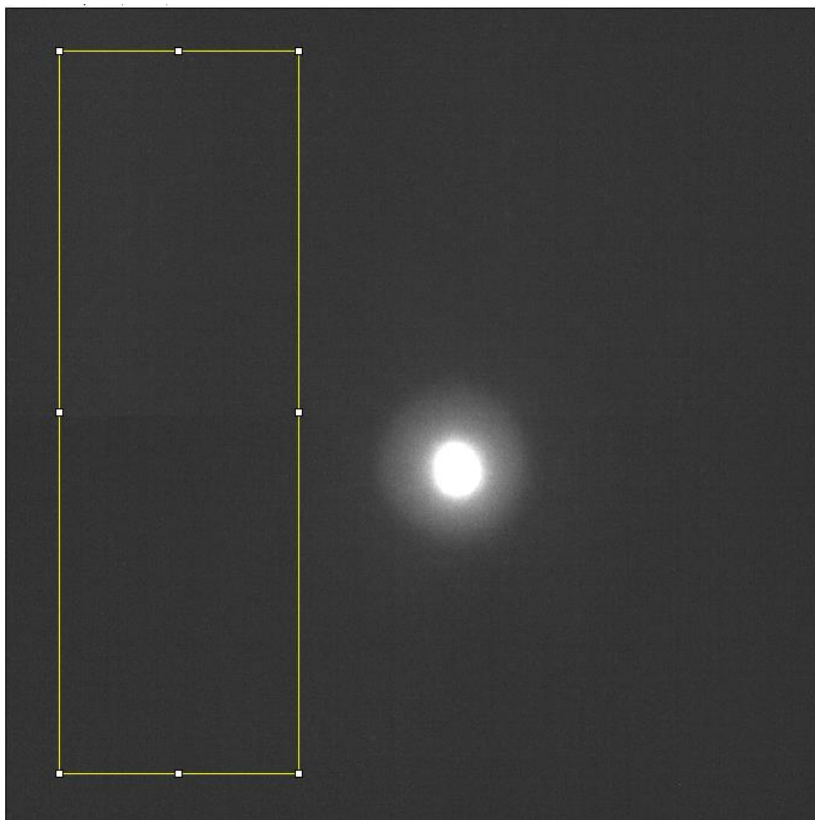


$$\frac{\text{Area}}{\text{IntDen}} = 7648$$

# -Kalibrierung-

Area	MeanBG	Min	Max	IntDen
1096254	7648.905	6990	8847	8385142748.000

Area	MeanSignal	Min	Max	IntDen
156816	11136.211	7481	45213	1746336090.000

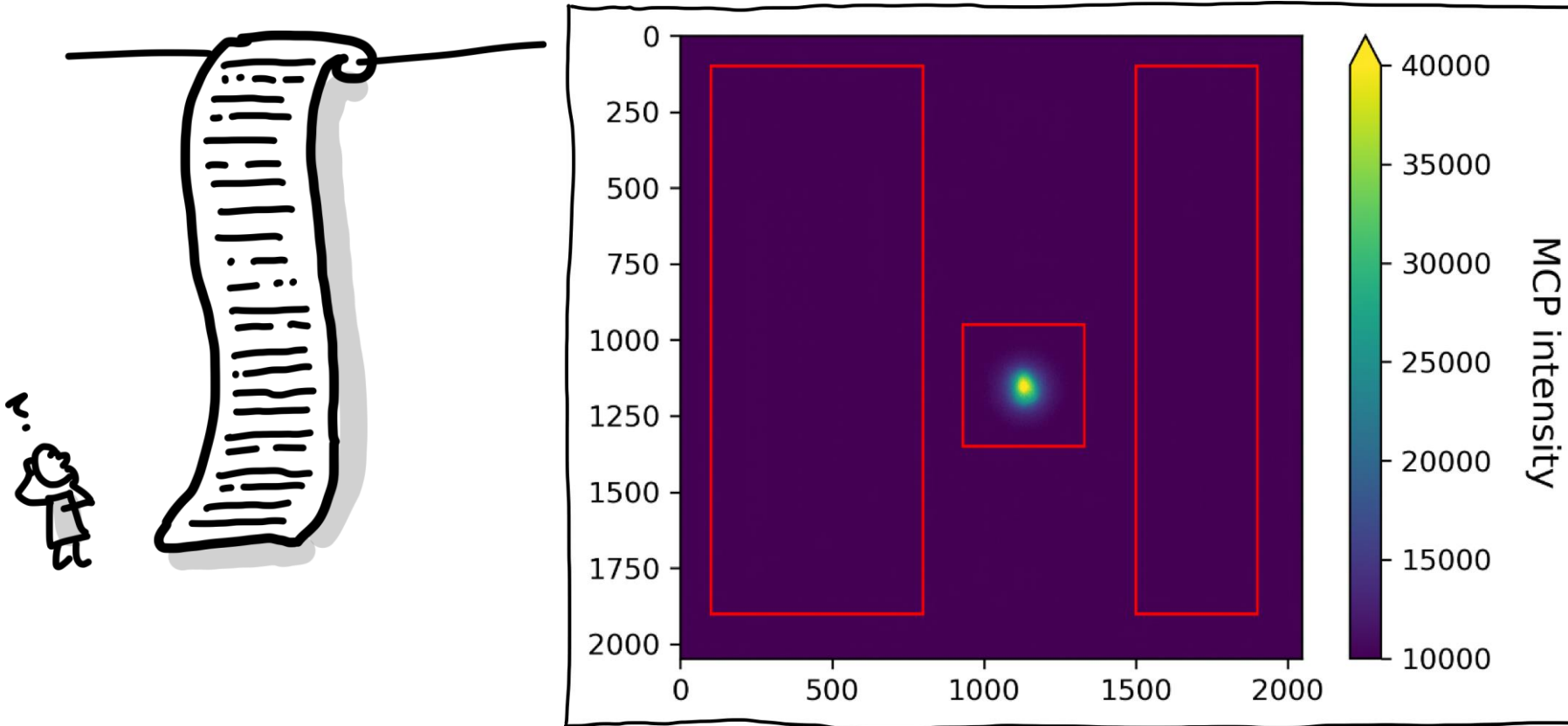


$$\frac{MeanBG}{MeanBG} = normBG = 1$$

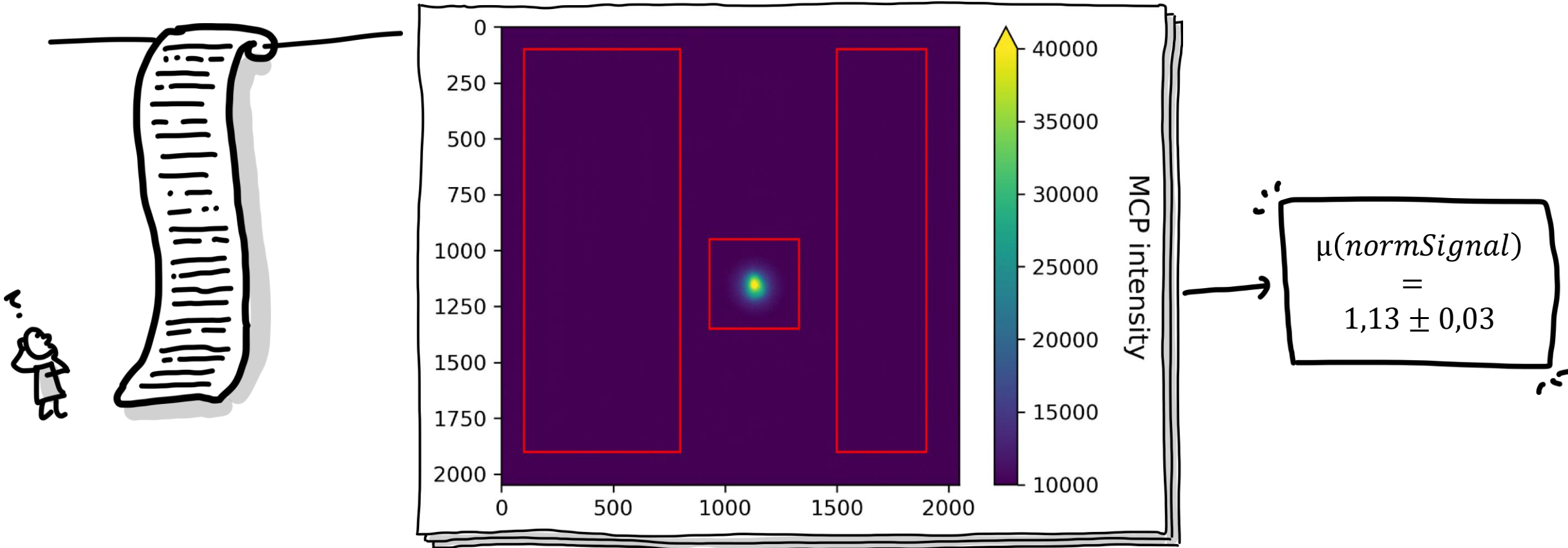
$$\frac{MeanSignal}{MeanBG} - 1 = normSignal$$

*normSignal: ca. 1,06*

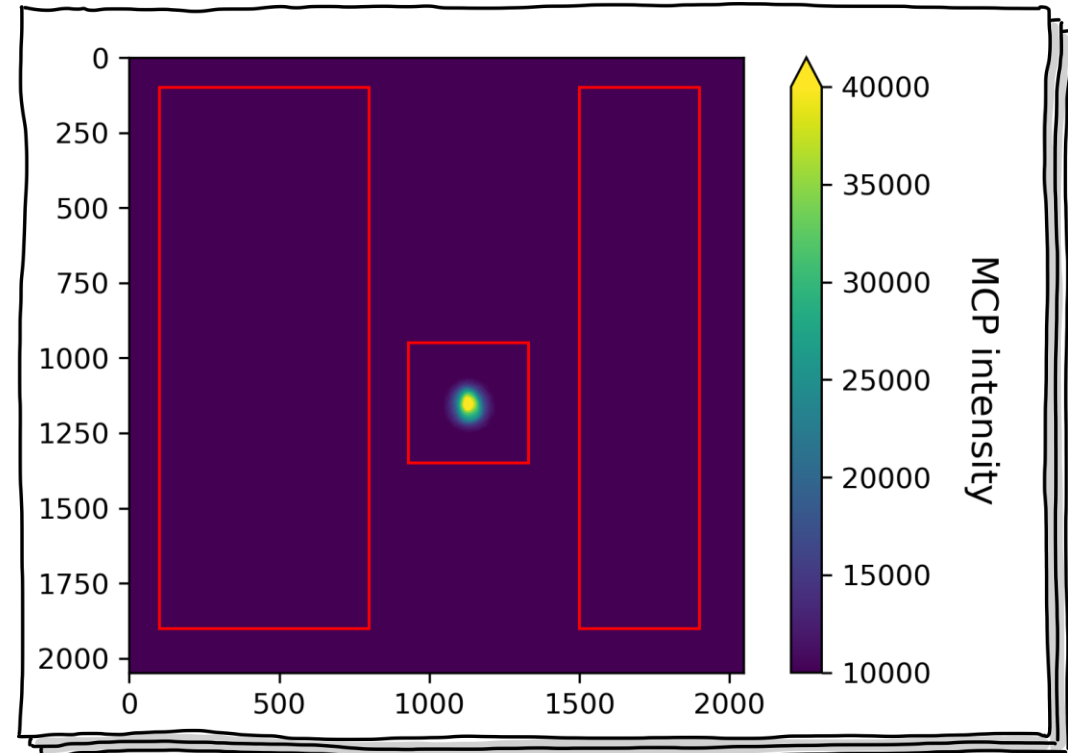
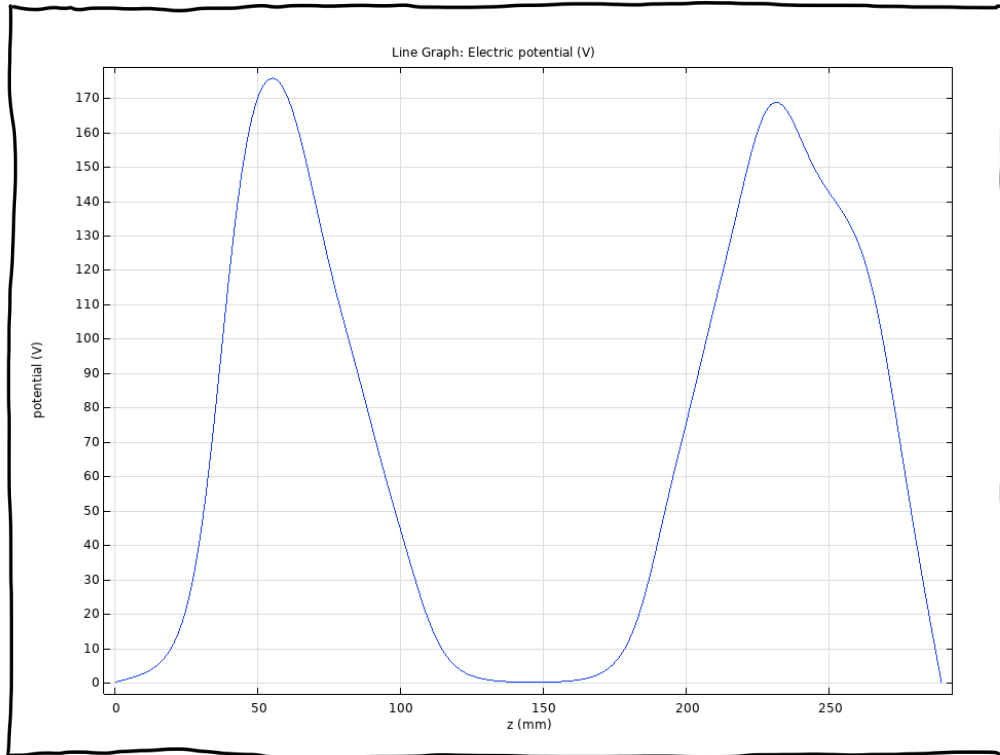
# -Kalibrierung-



# -Kalibrierung-



# - Fangen -

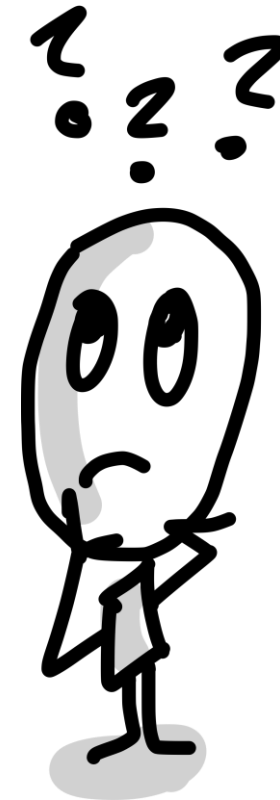
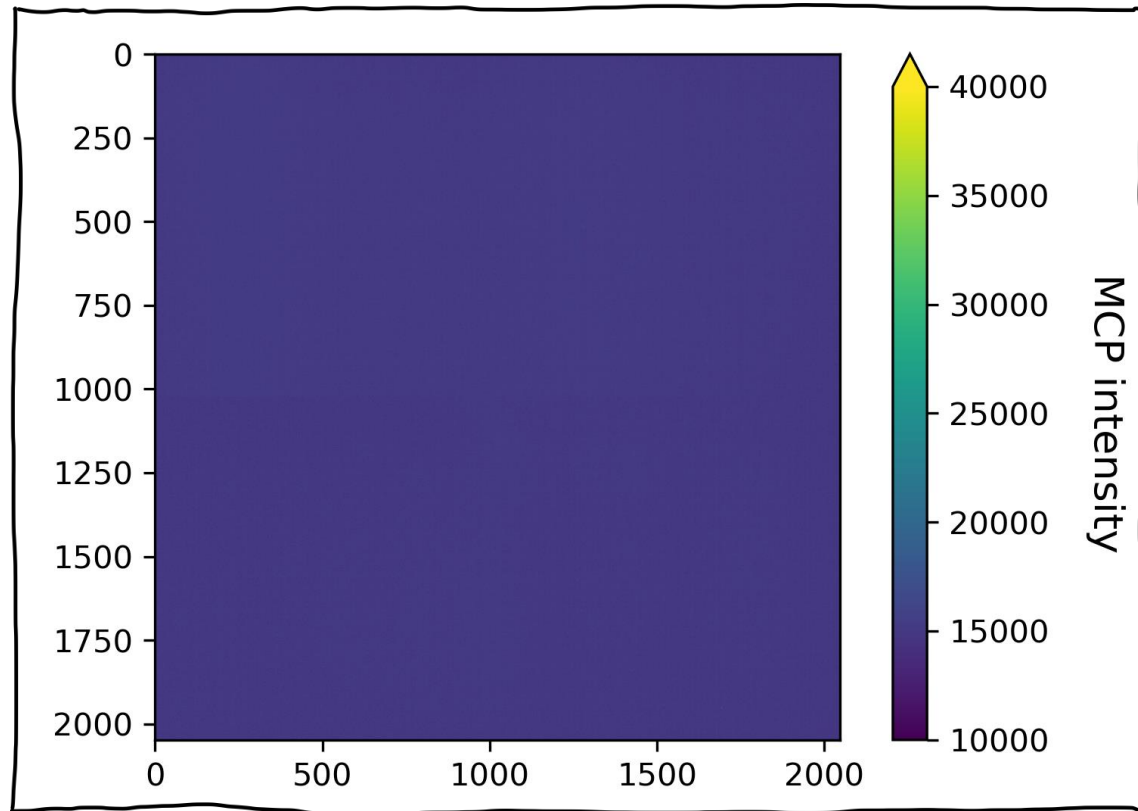


$$\mu(\text{normSignal}) = 0,46 \pm 0,04$$

~40% der Ausgangsmenge



# - Fangen -



# -Ausblick-

