Ac-Stark shift of Lithium-6 in an Optical Dipole Trap

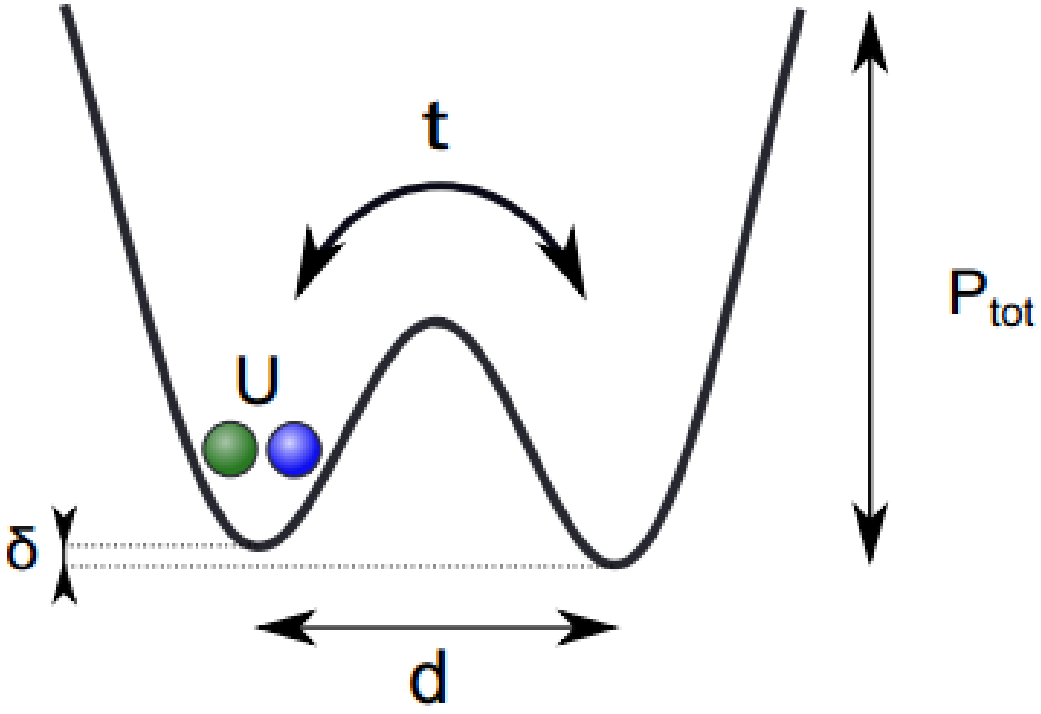
Jonathan Förste

June 14, 2015

Motivation

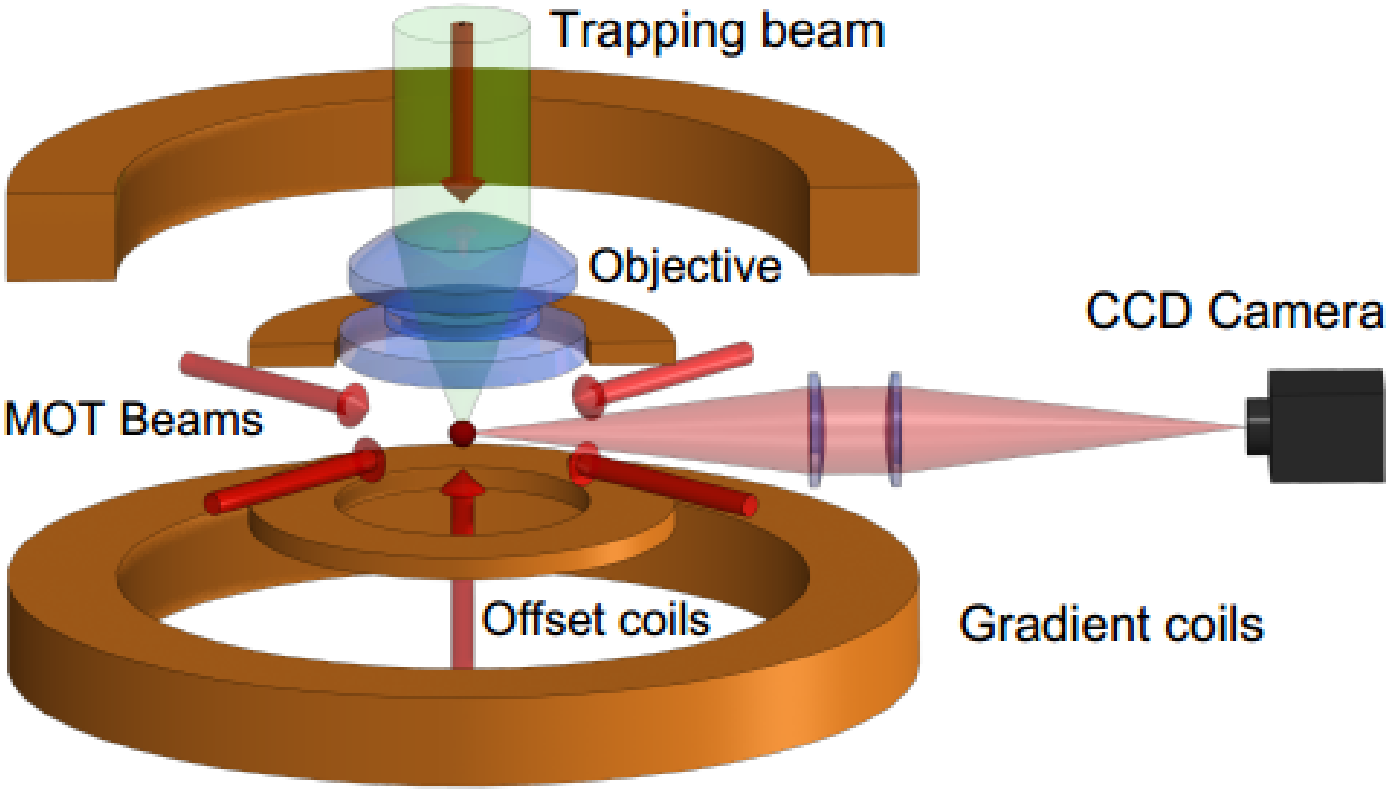
Hochtemperatur-Supraleiter

Motivation



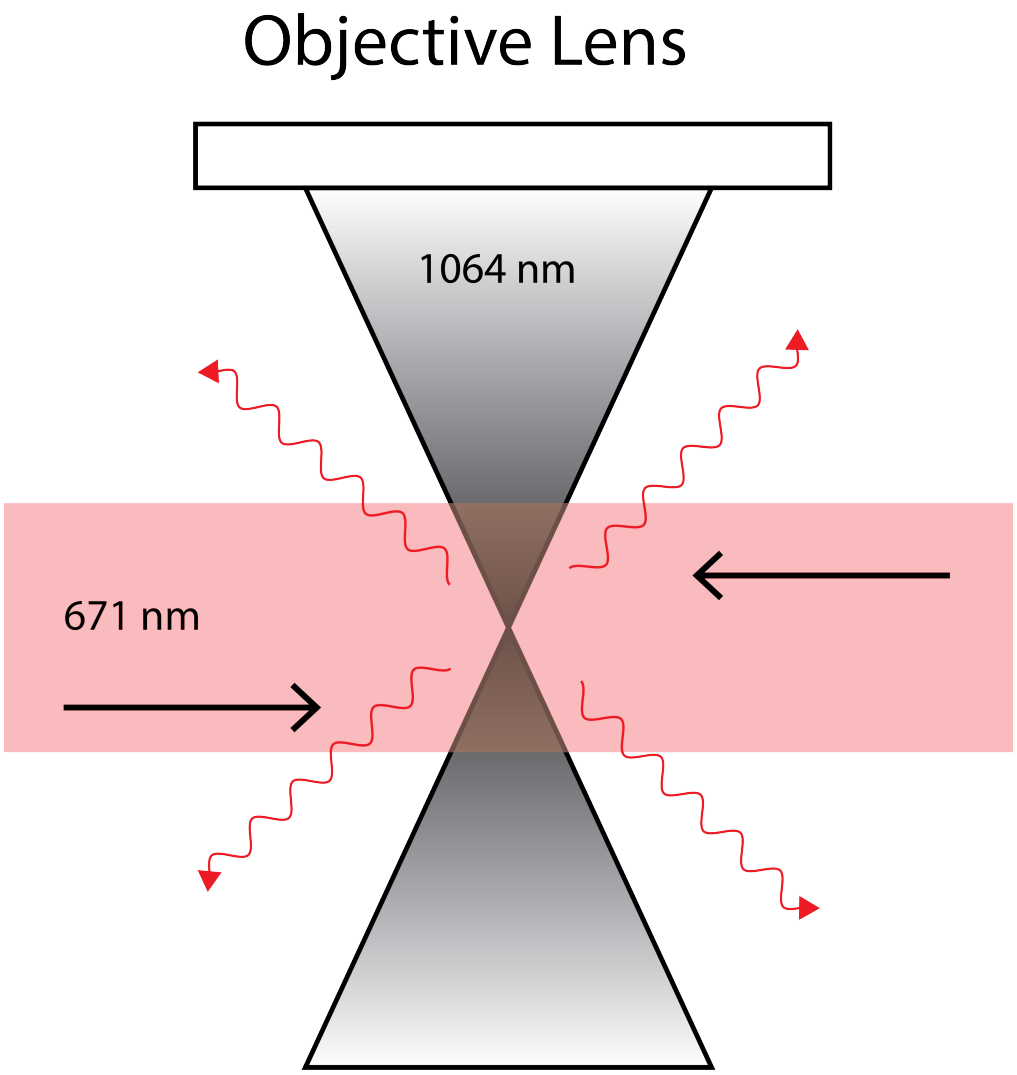
Doppeltopf-Potential

Motivation



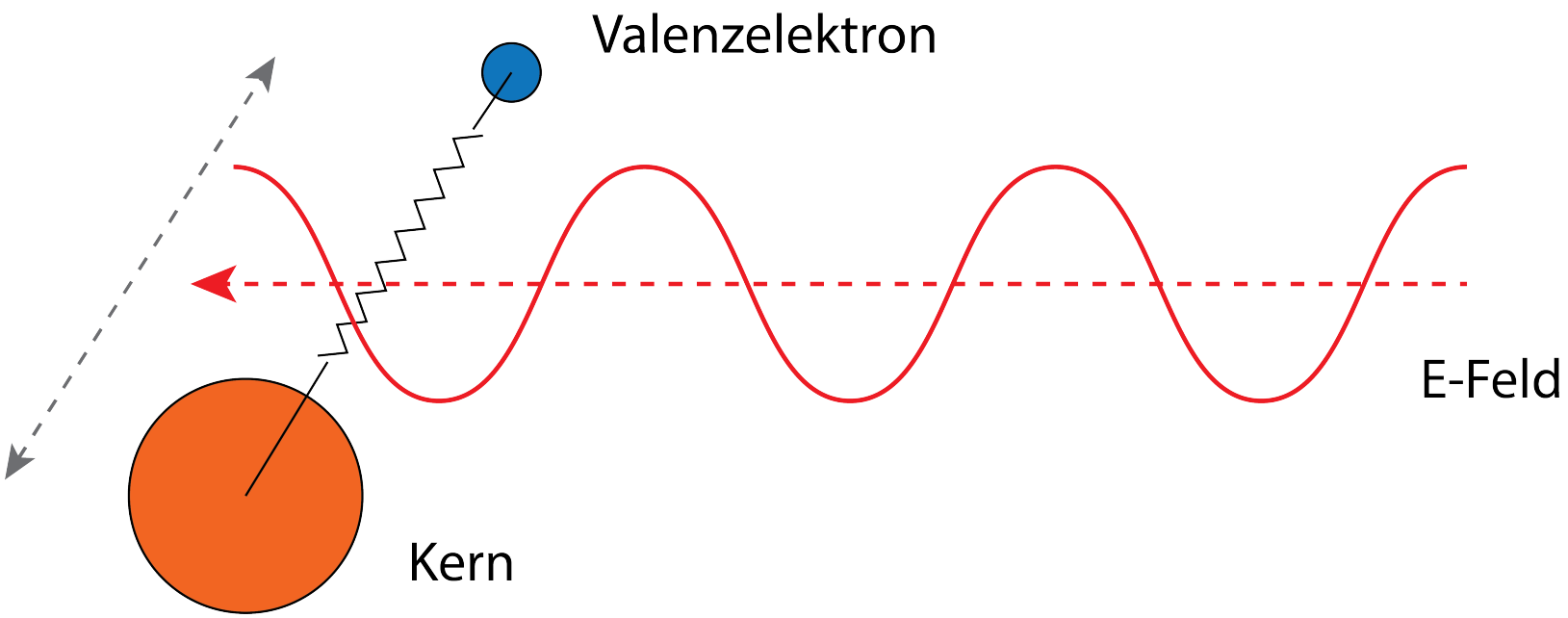
Aufbau des Experiments

Motivation



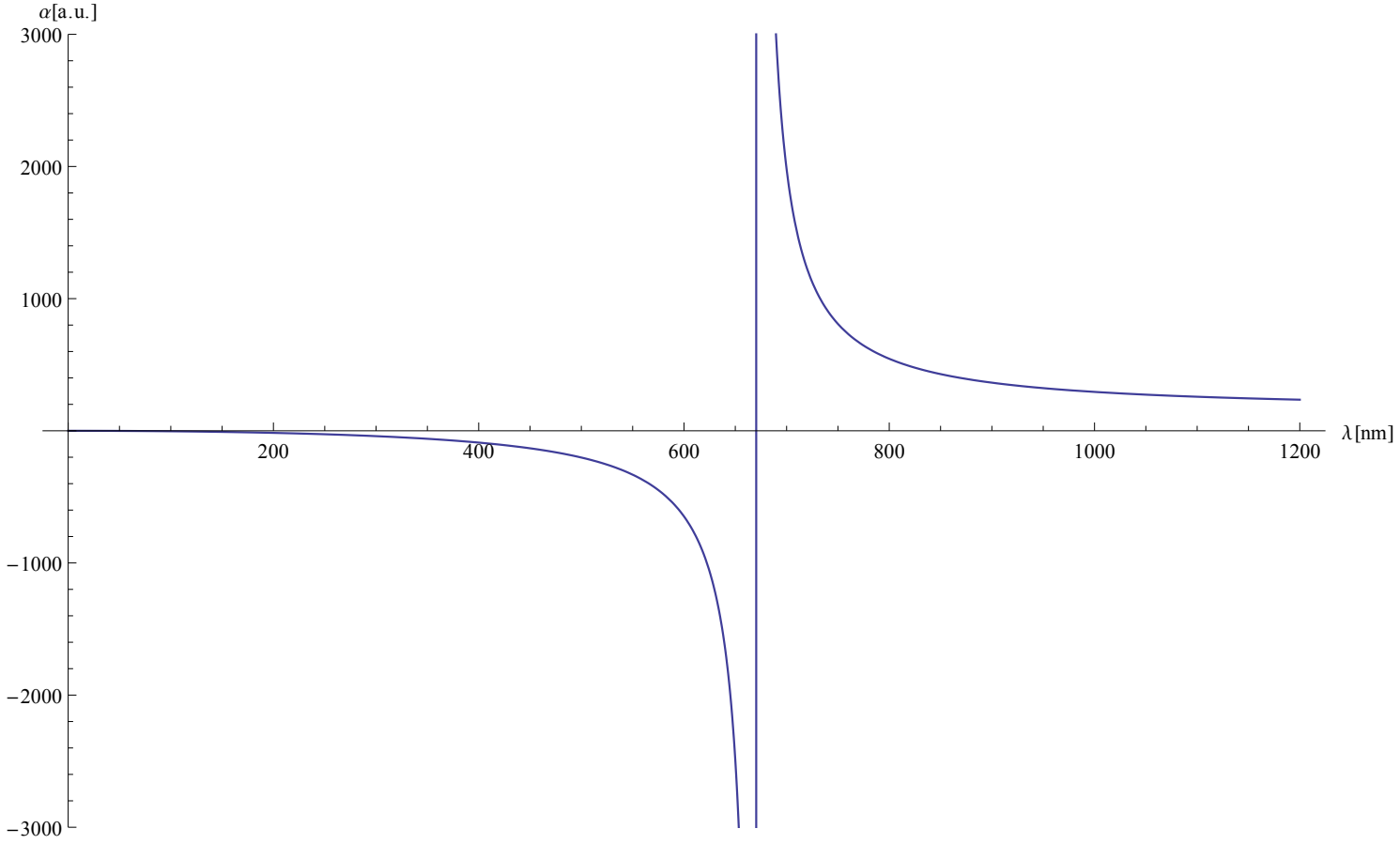
Schema für neues Imaging

Theorie und Berechnung



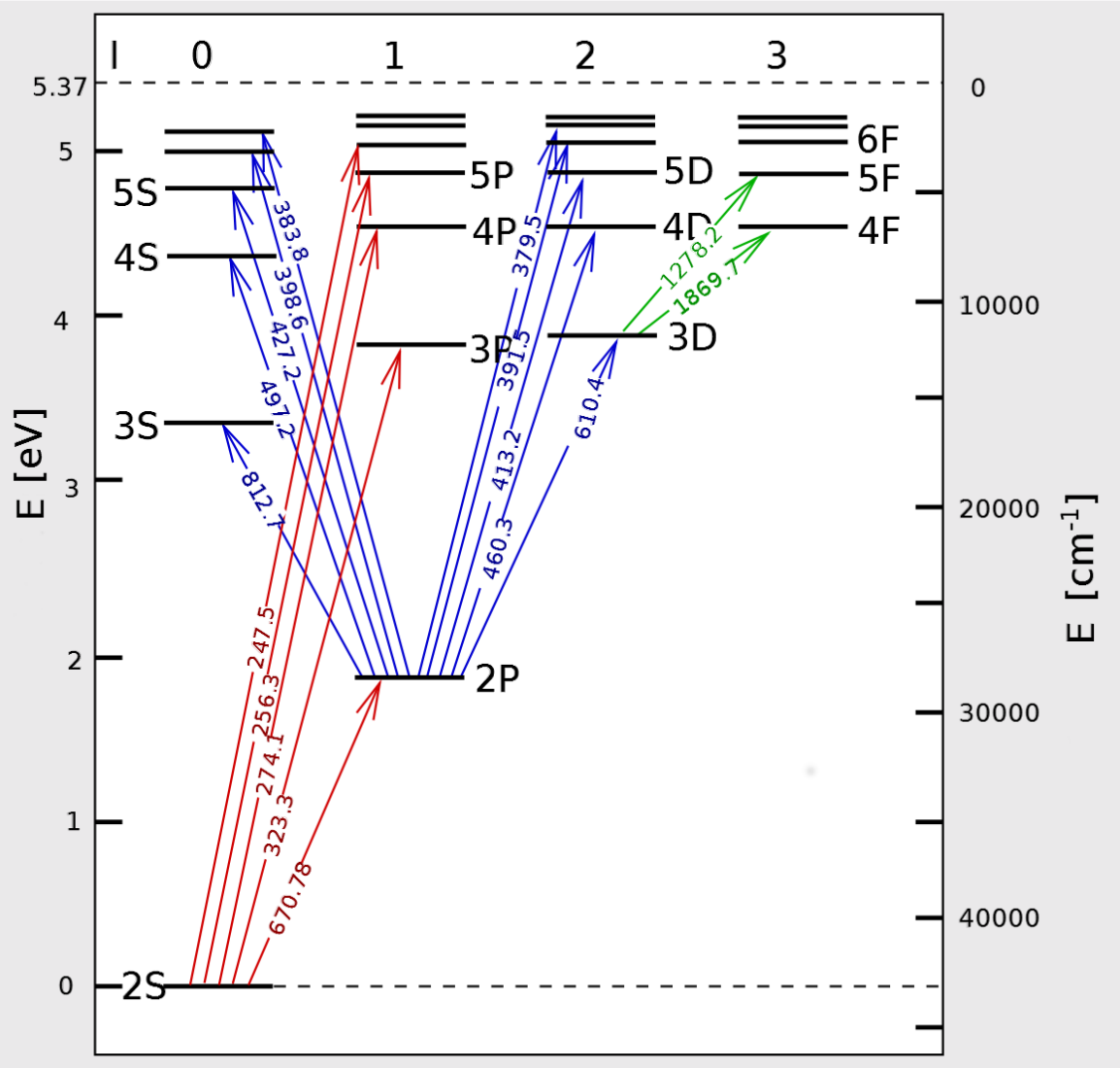
Klassisches Bild

Theorie und Berechnung



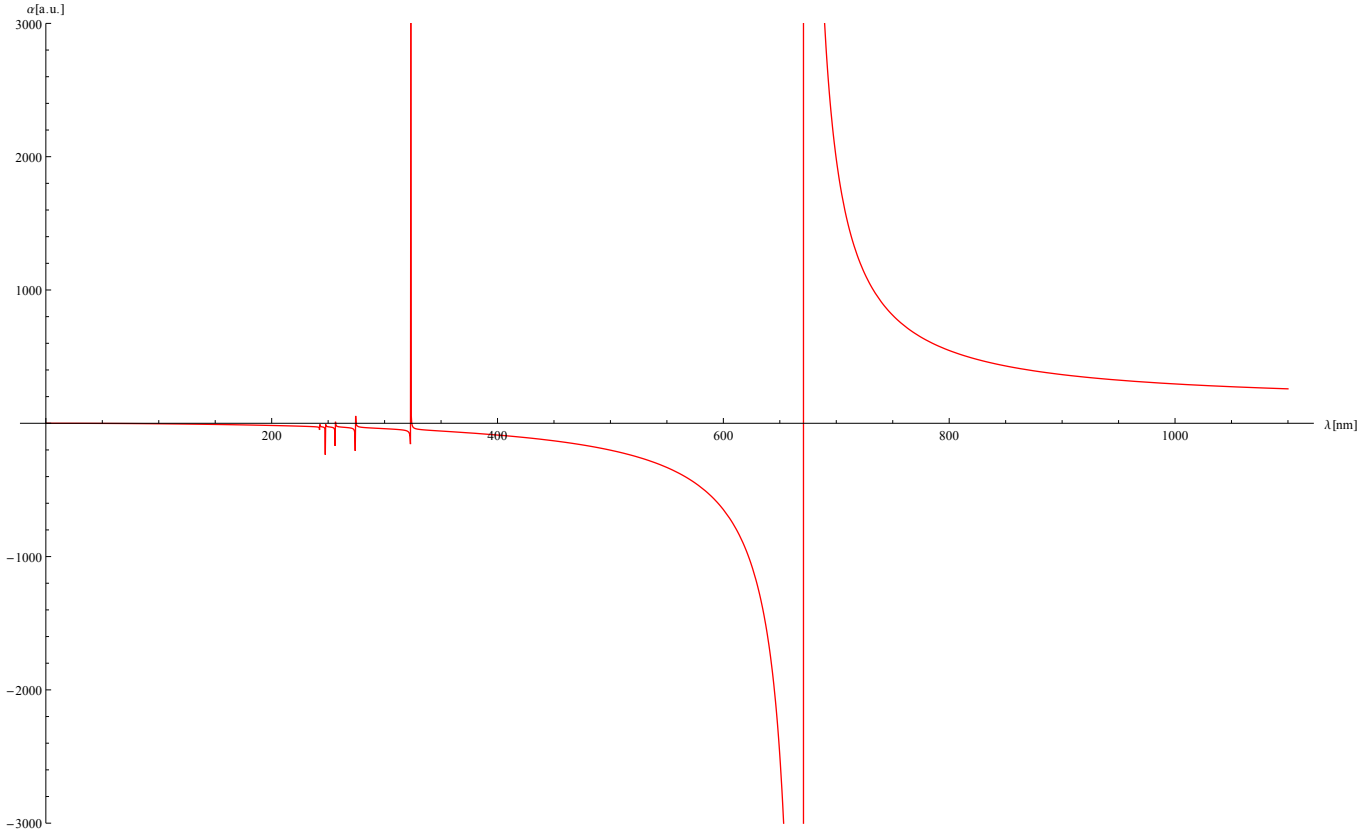
Klassisches Dipol-Potential

Theorie und Berechnung



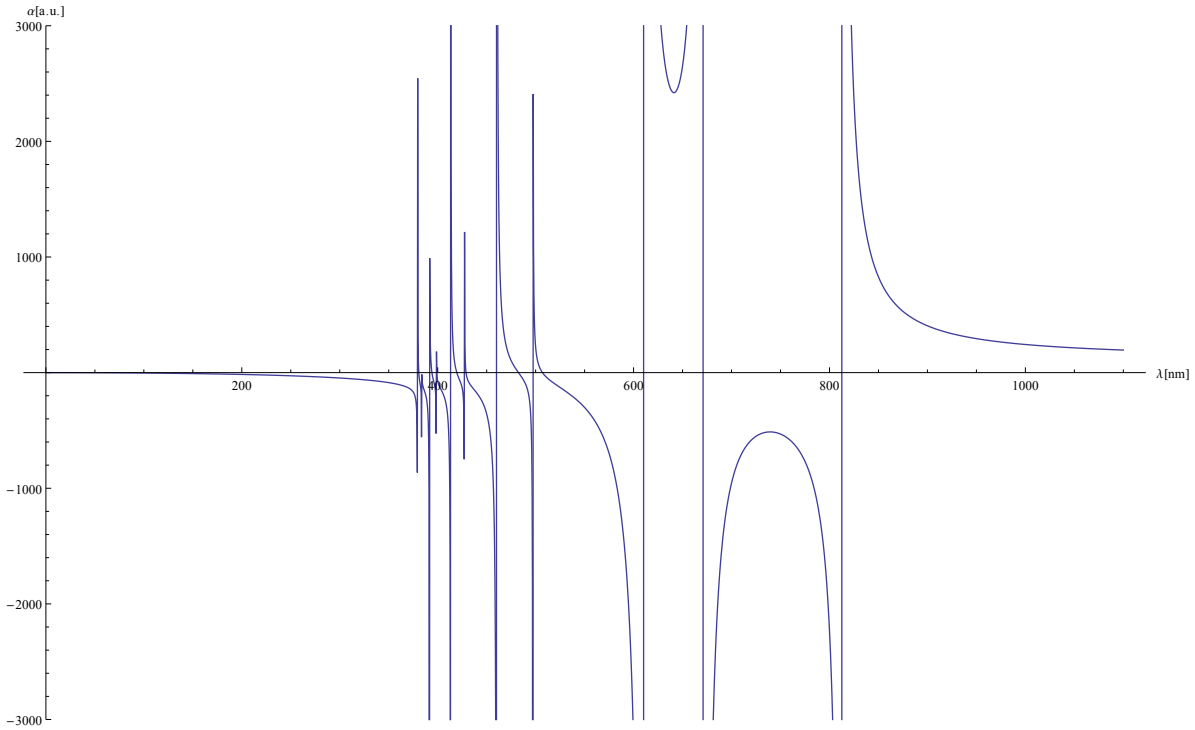
Termschema von Lithium

Theorie und Berechnung



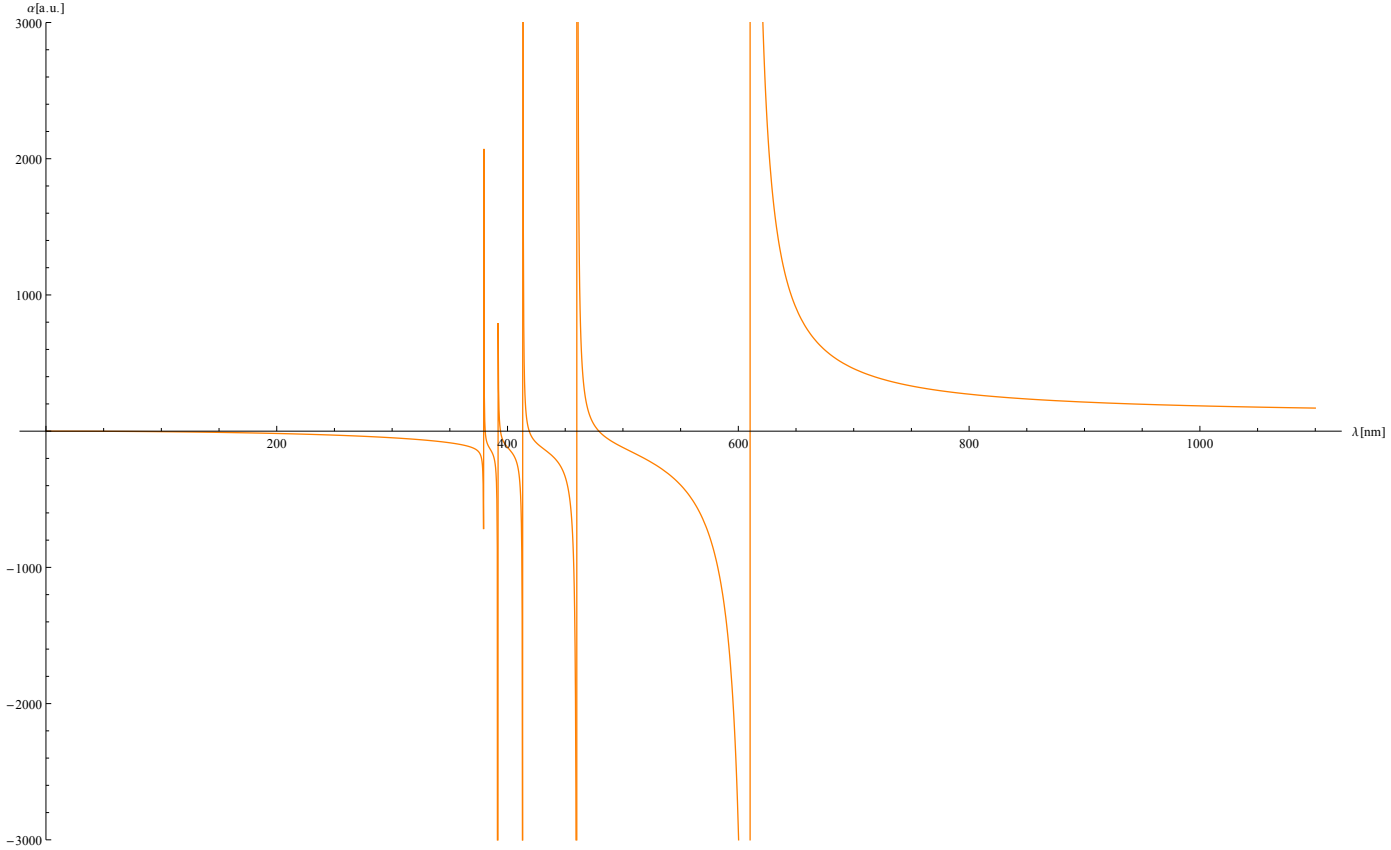
Polarisierbarkeit des Zustandes $2s_{1/2}$

Theorie und Berechnung



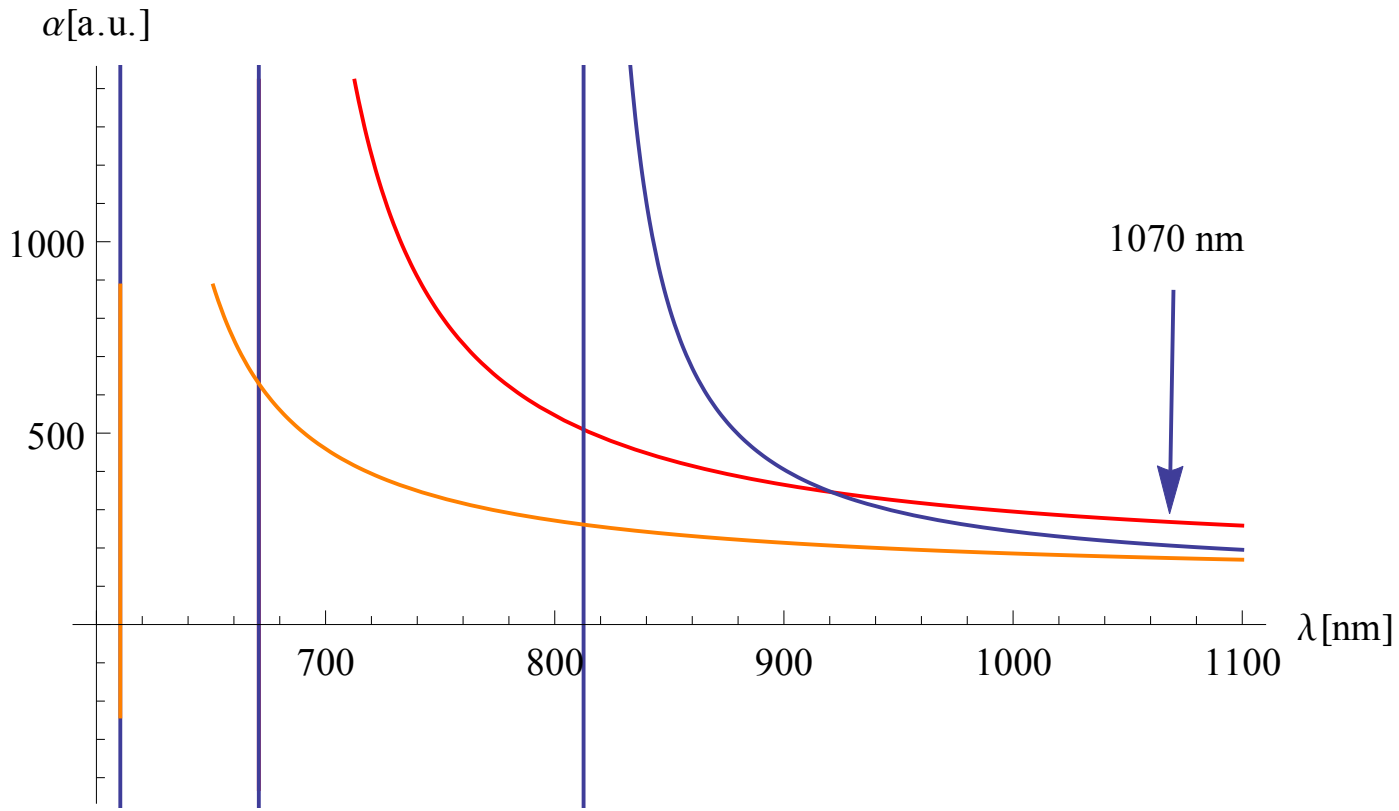
Polarisierbarkeit des Zustandes $2p_{3/2}, |m_J| = 1/2$

Theorie und Berechnung



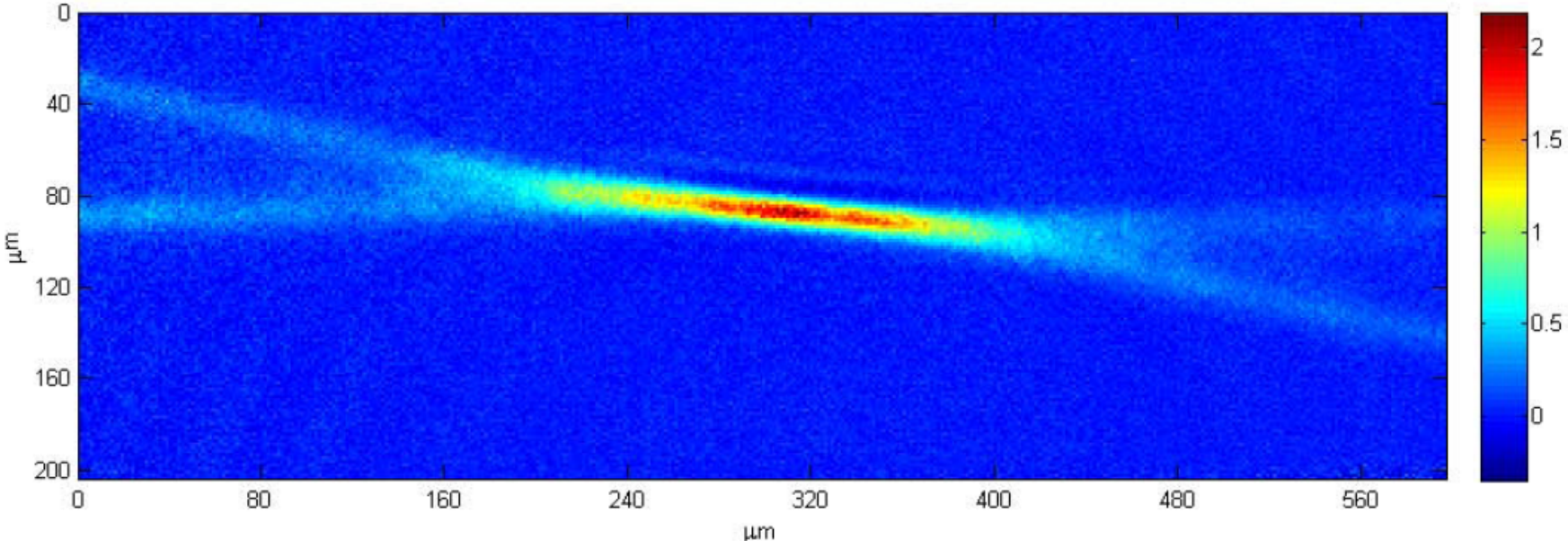
Polarisierbarkeit des Zustandes $2p_{3/2}, |m_J| = 3/2$

Theorie und Berechnung



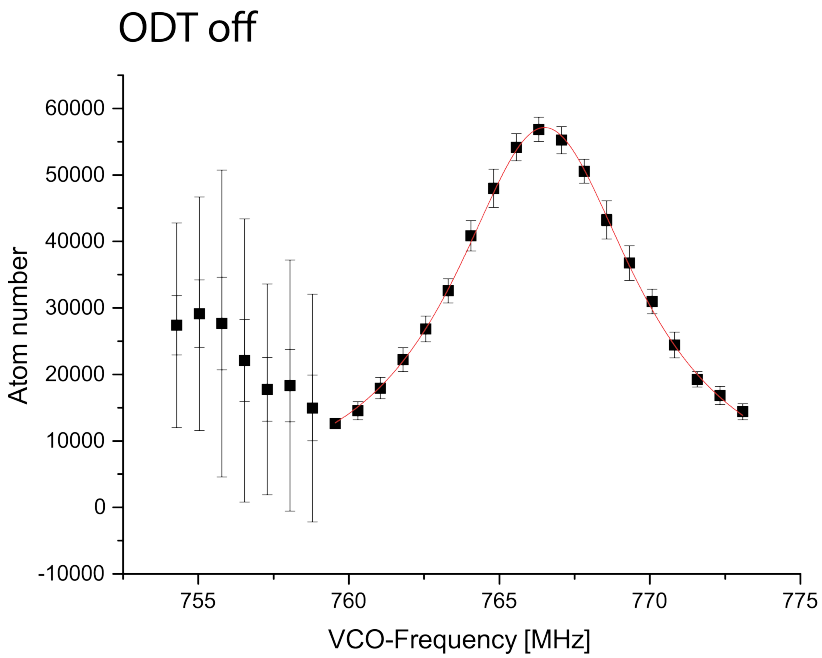
Polarisierbarkeiten der Zustände $2s_{1/2}$ (Rot), $2p_{3/2}, |m_{\mathcal{J}}| = 1/2$ (Blau), $2p_{3/2}, |m_{\mathcal{J}}| = 3/2$ (Gelb)

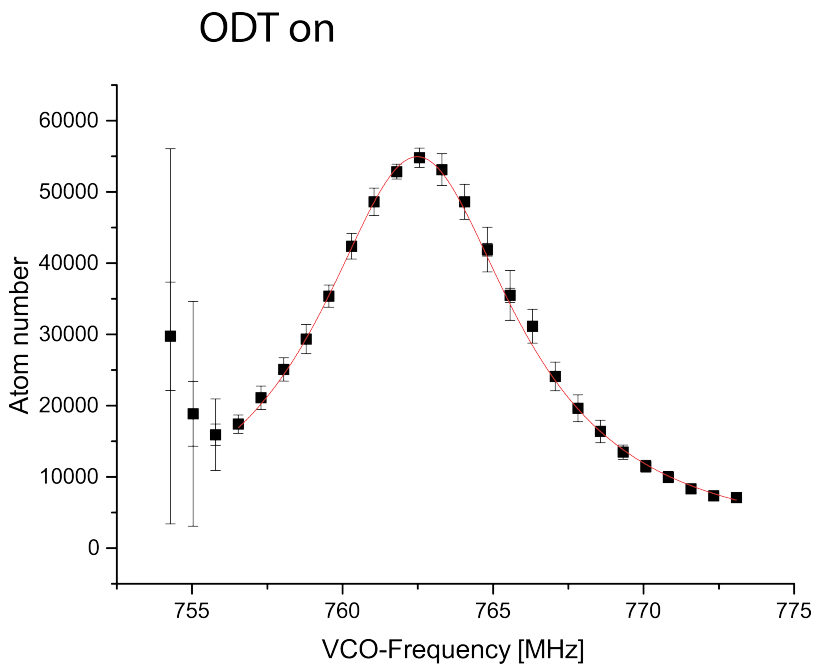
Messung



Absorbtionsbild der gekreuzten Dipolfalle

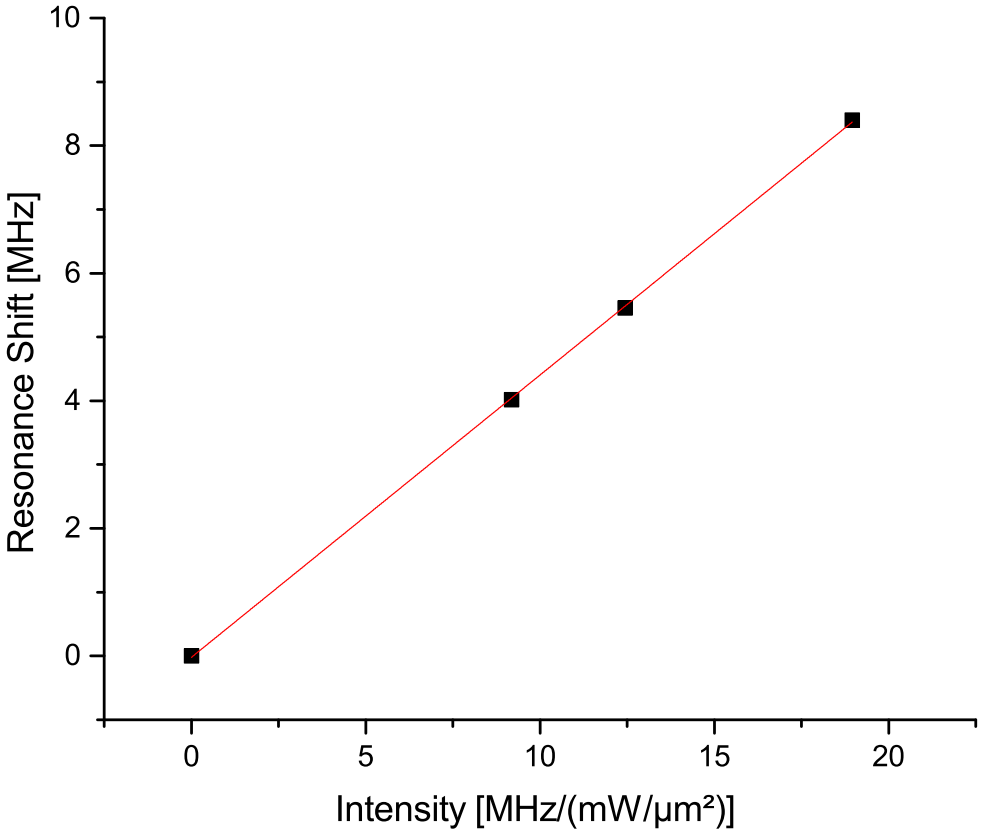
Messung





Beispiel für Resonanzverschiebung der D_2-Linie

Messung



Resonanzverschiebung D_2-Linie