

Prüfung in Physik:

$$\text{HWP: } \frac{0.925 - 1.2}{0.925 - 0} = -0.55$$

$$\text{Control: } f(x) = \frac{0.9 - 1.2}{1 - 0} = -0.3$$

Linsen

$$\begin{aligned} \text{Abbildung: } -1.95 / -0.9125 &= 1.58 = 158\% \\ \text{Control: } -1 / -0.9125 &= 1.09 = 109\% \\ \text{Abw: } -0.55 / -0.9125 &= 0.60 = 60\% \end{aligned}$$

Linsen relative

$$\begin{aligned} \text{Abbildung: } -0.58 &= 58\% \\ \text{Control: } -0.58 &= 58\% \\ \text{Abw: } 0.3972 &= 39\% \end{aligned}$$

Linsen relative

$$\frac{\text{Abw. d. v. - Abw. d. v.}}{\text{Abw. d. v.}}$$

$$f(x_i) = \frac{f(x) - f(x_{i-1})}{x_i - x_{i-1}} + O(h) \quad \text{Primer orden}$$

Seo de Taylor para x_{i-1}

$$f(x_i) = f(x_{i-1}) + f'(x_{i-1})(x_i - x_{i-1}) + O((x_i - x_{i-1})^2) \quad (2)$$

$$\begin{aligned} f(x_{i-1}) &= f'(x_i)(x_{i+1} - x_i) - f'(x_i)(x_i - x_{i-1}) + O((x_{i+1} - x_i)^2) + O((x_i - x_{i-1})^2) \\ &= -2f'(x_i)x_i + f'(x_i)(x_{i+1} + x_{i-1}) + \end{aligned}$$

$$f(x_{i+1}) - f(x_{i-1}) = f'(x_i)(x_{i+1} - x_{i-1}) + O(h^2)$$

$$f'(x_i) = \frac{f(x_{i+1}) - f(x_{i-1}))}{2(x_{i+1} - x_{i-1})} + O(h^2) \quad \text{Central}$$

Dados los puntos $x=0, 0.5, 1$ para la pso tern

$$f(0) = 1.2$$

$$f(0.5) = 0.925$$

$$f(1) = 0.2$$

Calcular la derivada de la función en $x=0.5$ usando los 3 aproximaciones por diferencias finitas

$$\text{Adiante } f'(x_i) = \frac{0.2 - 0.925}{1 - 0.5} = -\frac{0.725}{0.5} = -1.45$$