

x_1	x_2	x_3	Messung Leichter			
0	0	0	d_1	d_2	d_3	d_{max}
1	2,3	2,6	1,3	2,3	2,6	2,6
1,17	2,08	3,09	1,0,77	4,38	0,49	7,38
-0,242	2,033	1,742	1,412	4,123	1,348	4,113
1,262	1,88	3,26	1,504	0,153	1,518	1,518
0,912	2,027	2,912	6,35	0,147	0,347	0,935

x_1	x_2	x_3	d_1	d_2	d_3	d_{max}
0	0	0	1	2,3	2,6	2,6
1,17	2,08	3,09	0,17	0,22	0,49	0,49
1,006	2,033	2,89	0,164	0,647	0,1	0,164
1,0159	2,0038	3,0087	0,0059	0,0292	0,0187	0,0292

Messung Seigere

$$x_0 = \begin{pmatrix} 0 \\ 0 \\ 0 \end{pmatrix}$$

$$x_2 = \begin{pmatrix} 1,44 \\ 2,0072 \\ 2,9734 \end{pmatrix}$$

$$x_3 = \begin{pmatrix} 1 \\ 2,6 \\ 3,18 \end{pmatrix}$$

$$x_3 = \begin{pmatrix} 1,0075 \\ 2,0075 \\ 3,00752 \end{pmatrix}$$

~~$$\begin{pmatrix} 5 & 5 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{pmatrix} \cdot \begin{pmatrix} 5 & 1 & 1 \\ 5 & 1 & 1 \\ 5 & 1 & 1 \end{pmatrix}$$~~

$$\begin{pmatrix} 5 & 5 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{pmatrix} \cdot \begin{pmatrix} 5 & 1 & 1 \\ 5 & 1 & 1 \\ -5 & 1 & 1 \end{pmatrix} = \begin{pmatrix} 51 & 9 & 52 \\ 9 & 3 & 8 \\ 52 & 8 & 26 \end{pmatrix}$$

$$A = \{\vec{a}_1, \vec{a}_2, \vec{a}_3\}$$

$$\vec{r}_1 = \vec{a}_1 \Rightarrow t_{12} = \frac{(\vec{r}_1, \vec{a}_2)}{(\vec{r}_1, \vec{r}_1)} = \frac{(5 \cdot 5 + 1 \cdot 1 + 1 \cdot 1)}{(25 + 1 + 1)} = \frac{26}{27}$$

$$\vec{r}_2 = \vec{a}_2 - t_{12} \cdot \vec{r}_1 = \begin{pmatrix} 5 \\ 1 \\ 0 \end{pmatrix} - \frac{26}{27} \begin{pmatrix} 5 \\ 1 \\ 1 \end{pmatrix} = \begin{pmatrix} \frac{5}{27} \\ \frac{1}{27} \\ -\frac{16}{27} \end{pmatrix}$$

$$\Rightarrow t_{13} = \frac{(\vec{r}_1, \vec{a}_3)}{(\vec{r}_1, \vec{r}_1)} = \frac{(5 \cdot (-3) + 1 \cdot 1 + 1 \cdot 1) \cdot (-2)}{(25 + 1 + 1)} = -\frac{2}{3}$$

$$t_{23} = \frac{(\vec{r}_2, \vec{a}_3)}{(\vec{r}_2, \vec{r}_2)} = \frac{\left(\frac{5}{27} \cdot (-3) + \frac{1}{27} \cdot 1 + \left(-\frac{16}{27}\right) \cdot (-2)\right)}{\frac{25}{729} + \frac{1}{729} + \frac{676}{729}} = \frac{24}{13}$$

$$\vec{r}_3 = \vec{a}_3 - t_{13} \cdot \vec{r}_1 - t_{23} \cdot \vec{r}_2 = \begin{pmatrix} -1 \\ 3 \\ -2 \end{pmatrix} - \left(-\frac{2}{3}\right) \cdot \begin{pmatrix} 5 \\ 1 \\ 1 \end{pmatrix} - \frac{24}{13} \begin{pmatrix} \frac{5}{27} \\ \frac{1}{27} \\ -\frac{16}{27} \end{pmatrix}$$

$$\begin{pmatrix} \frac{3}{13} \\ \frac{15}{13} \\ 0 \end{pmatrix}$$

$$b = \begin{pmatrix} -2 \\ 2 \\ -5 \end{pmatrix} \Rightarrow \text{hatte 40 Jahre lang}$$

$$x_3 = \frac{(r_3, \bar{p})}{(r_3, \bar{a})} = \frac{((-3/5) \cdot (-2) + (15/15) \cdot 2 + 0)}{((-3/13) \cdot (-3) + (15/13) + 0)} = 2$$

$$\bar{p}^{(2)} = \begin{pmatrix} -2 \\ 2 \\ -5 \end{pmatrix} - 2 \cdot \begin{pmatrix} -3 \\ 1 \\ -2 \end{pmatrix} = \begin{pmatrix} 0 \\ 0 \\ 1 \end{pmatrix}$$

$$x_2 = \frac{(r_2, \bar{p}^{(2)})}{(r_2, \bar{a}_2)} = \frac{(0 + 0 - \frac{26}{27})}{(5/27 + 1/27 \cdot 9 + 0)} = -9$$

$$x_1 = \frac{(r_1, \bar{p}^{(2)})}{(r_1, \bar{a}_1)}$$

$$\bar{p}^{(2)} = \begin{pmatrix} 0 \\ 0 \\ 1 \end{pmatrix} - 9 \cdot \begin{pmatrix} 5 \\ 1 \\ 0 \end{pmatrix} = \begin{pmatrix} -45 \\ -9 \\ 1 \end{pmatrix}$$

$$\begin{cases} x_1 = 9 \\ x_2 = -9 \\ x_3 = 2 \end{cases}$$

$$x_1 = \frac{5 \cdot 9 + 1 \cdot (-9) + 1 \cdot 1}{5 \cdot 9 + 1 \cdot (-9) + 1 \cdot 1}$$