

Bessere Koordinaten :  $x_s, \vartheta$

$$x_s = \frac{m_1 x_1 + m_2 x_2}{m_1 + m_2}$$

$$= \frac{1}{m_1 + m_2} (m_1 x_1 + m_2 x_1 + m_2 l \sin \vartheta)$$

$$x_s = x_1 + \frac{m_2}{m_1 + m_2} l \sin \vartheta$$

$$x_1 = x_s - \frac{m_2}{m_1 + m_2} l \sin \vartheta$$

$$x_2 = x_s + \frac{m_1}{m_1 + m_2} l \sin \vartheta$$

$$x_2 = x_s - \frac{m_2}{m_1 + m_2} l \sin \vartheta + l \sin \vartheta$$

$$= x_s + \frac{l \sin \vartheta}{m_1 + m_2} (m_1 + m_2 - m_2)$$