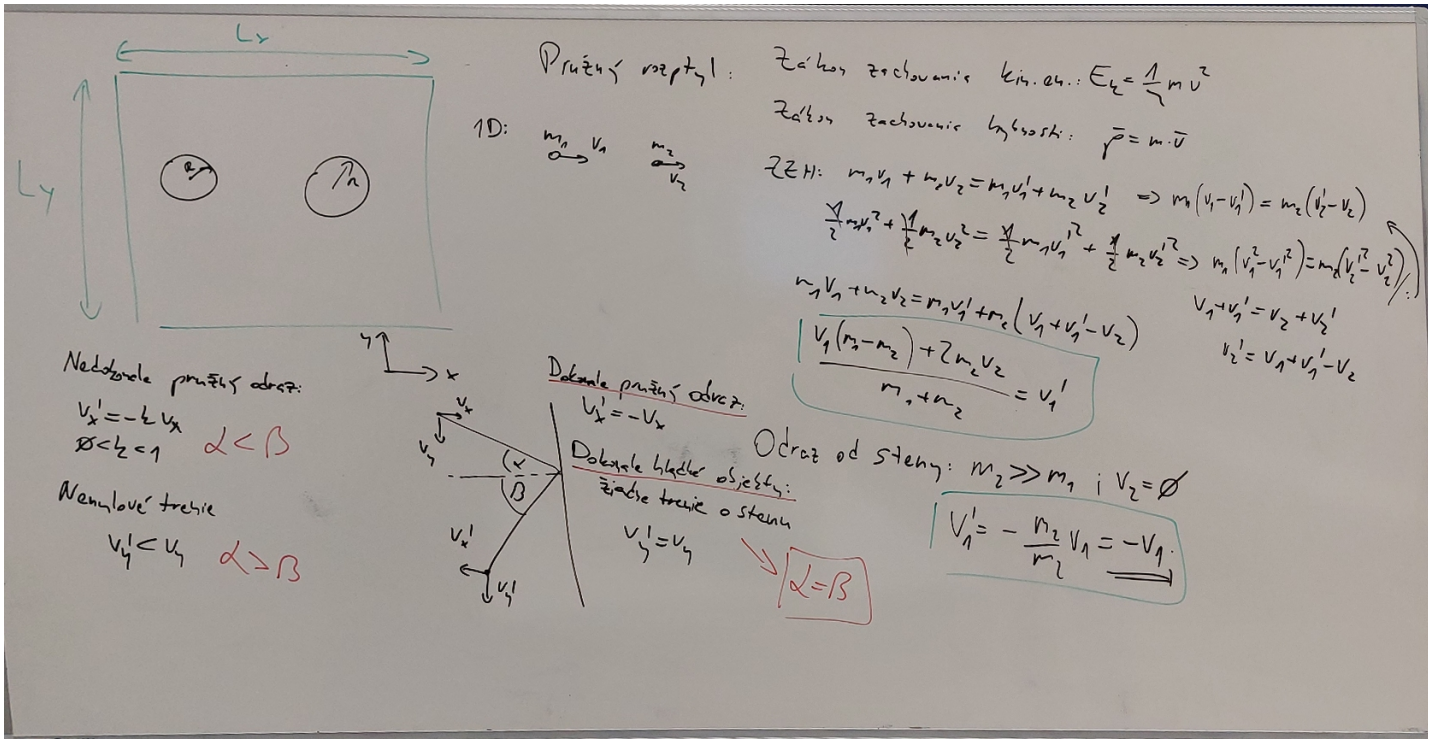
L_x
L_y
Pružný rozptyl:
1D:
m_1 v_1
m_2 v_2
Zákon zachovania kin. en.: $E_k = \frac{1}{2} m v^2$
Zákon zachovania hybnosti: $\bar{p} = m \cdot \bar{v}$
ZEH: $m_1 v_1 + m_2 v_2 = m_1 v_1' + m_2 v_2' \Rightarrow m_1(v_1 - v_1') = m_2(v_2' - v_2)$
$\frac{1}{2} m_1 v_1^2 + \frac{1}{2} m_2 v_2^2 = \frac{1}{2} m_1 v_1'^2 + \frac{1}{2} m_2 v_2'^2 \Rightarrow m_1(v_1^2 - v_1'^2) = m_2(v_2'^2 - v_2^2)$
$v_1 + v_1' = v_2 + v_2'$
$v_2' = v_1 + v_1' - v_2$
$m_1 v_1 + m_2 v_2 = m_1 v_1' + m_2(v_1 + v_1' - v_2)$
$v_1' = \frac{v_1(m_1 - m_2) + 2 m_2 v_2}{m_1 + m_2}$
Odraz od steny: $m_2 \gg m_1$; $v_2 = 0$
$v_1' = -\frac{m_2}{m_2} v_1 = -v_1$
Nedokonale pružný odraz:
$v_x' = -k v_x$
$0 < k < 1$ $\alpha < \beta$
Newtonové trenie
$v_y' < v_y$ $\alpha > \beta$
Dokonale pružný odraz:
$v_x' = -v_x$
Dokonale hladké oblasti:
žiadne trenie o steny
$v_y' = v_y$
$\alpha = \beta$
x
y
v_x
v_y
α
β
v_x'
v_y'