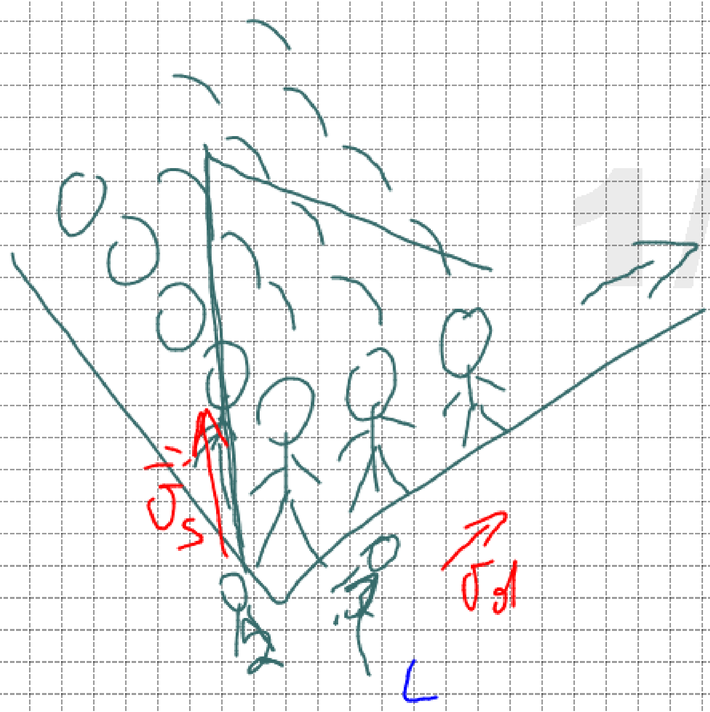
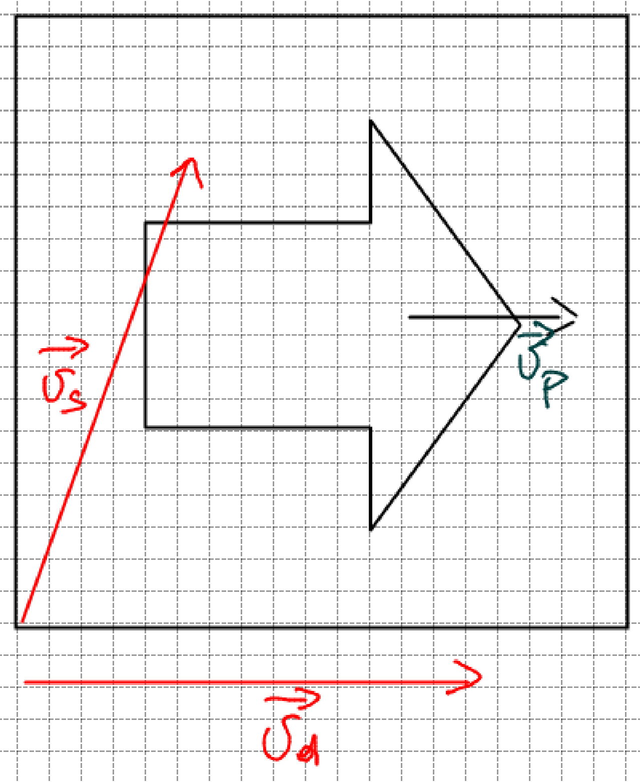


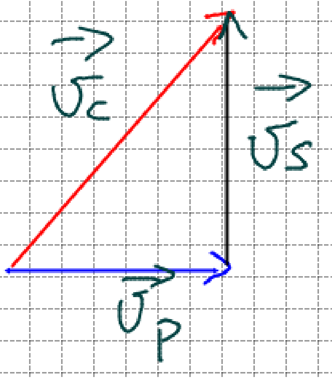


L

$v_s = v_d = v_{corr} = v_c$

$T = \frac{s}{v}$

Sbieco



$$v_s = \sqrt{v_c^2 - v_p^2}$$

$$T_s = \frac{2L}{\sqrt{v_c^2 - v_p^2}}$$

Dritto

$$T_D = T_{andata} + T_{ritorno}$$

$$T_{andata} = \frac{L}{v_c - v_p} \qquad T_{ritorno} = \frac{L}{v_c + v_p}$$

$$T_D = \frac{L}{v_c - v_p} + \frac{L}{v_c + v_p} = \frac{Lv_c + \cancel{Lv_p} + Lv_c - \cancel{Lv_p}}{v_c^2 - v_p^2} = $$

$$= \frac{2Lv_c}{v_c^2 - v_p^2}$$

$$T_s = 2L\frac{1}{\sqrt{v_c^2 - v_p^2}} \; ; \; T_D = 2L\frac{v_c}{v_c^2 - v_p^2}$$

$$T_s = 2L\frac{1}{\sqrt{v_c^2 - v_p^2}} \cdot \frac{\sqrt{v_c^2 - v_p^2}}{\sqrt{v_c^2 - v_p^2}} = 2L\frac{\sqrt{v_c^2 - v_p^2}}{v_c^2 - v_p^2}$$

$$\frac{T_s}{T_D} = \frac{\sqrt{v_c^2 - v_p^2}}{v_c} \Rightarrow \frac{T_s}{T_D} = \sqrt{\frac{v_c^2 - v_p^2}{v_c^2}}$$

$$\frac{T_S}{T_D} = \sqrt{\frac{v_c^2 - v_p^2}{v_c^2}} \qquad \frac{T_S}{T_D} = \sqrt{1 - \left(\frac{v_p}{v_c}\right)^2}$$

$$\frac{v_p}{v_c} = \beta \qquad \frac{T_S}{T_D} = \sqrt{1 - \beta^2}$$

$$T_S \ll T_D$$