AGG0232

Material de apoio para a aula de 26/04/2023

Refração Crítica em uma Interface Inclinada – Parte 3: Equações de t(x)

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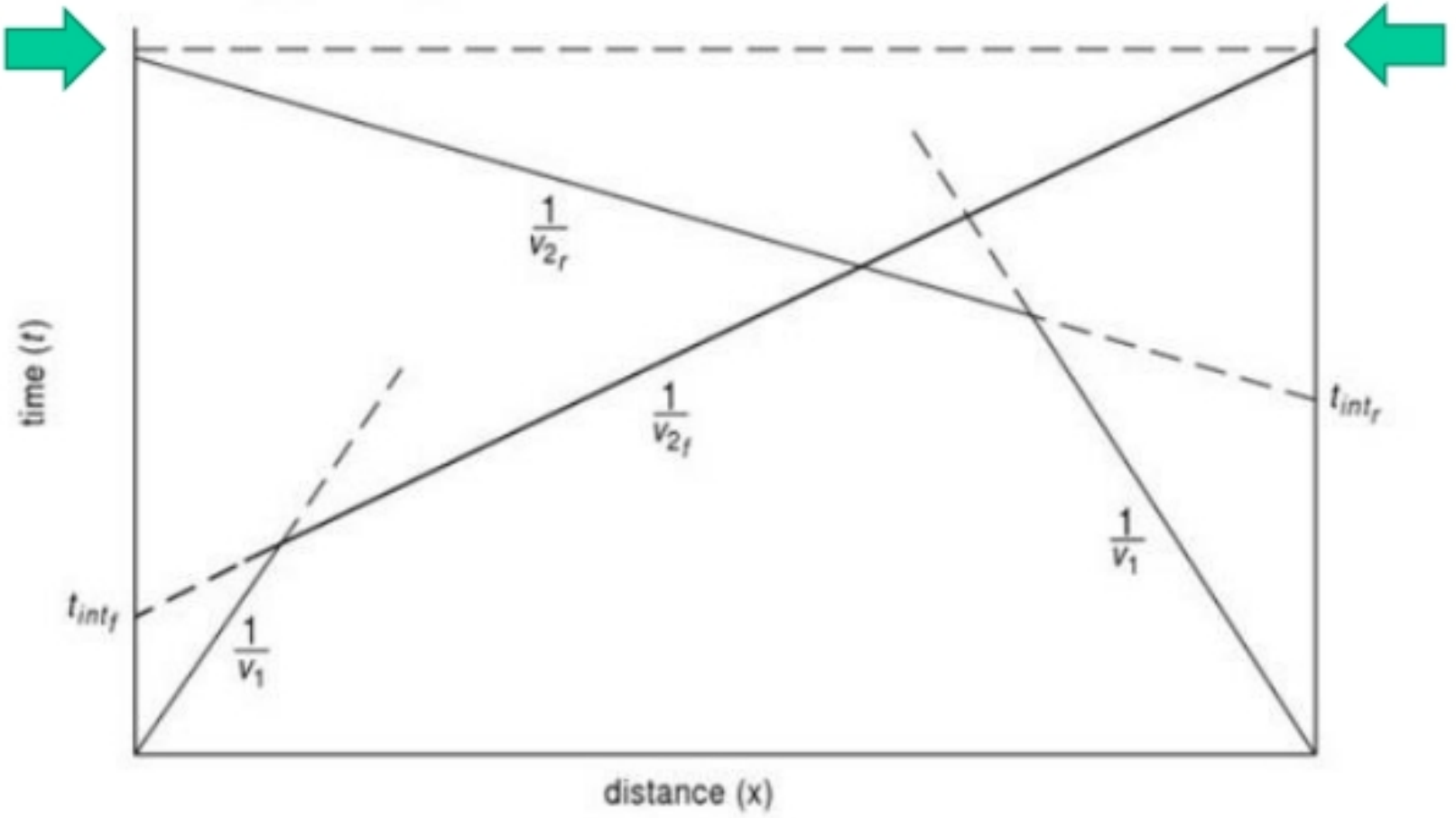
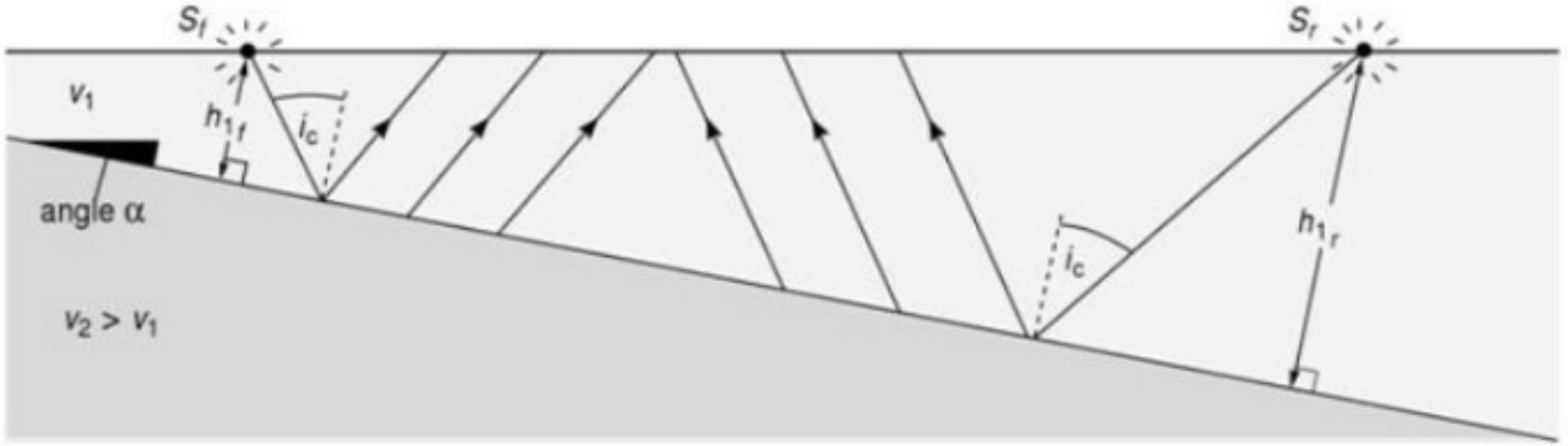
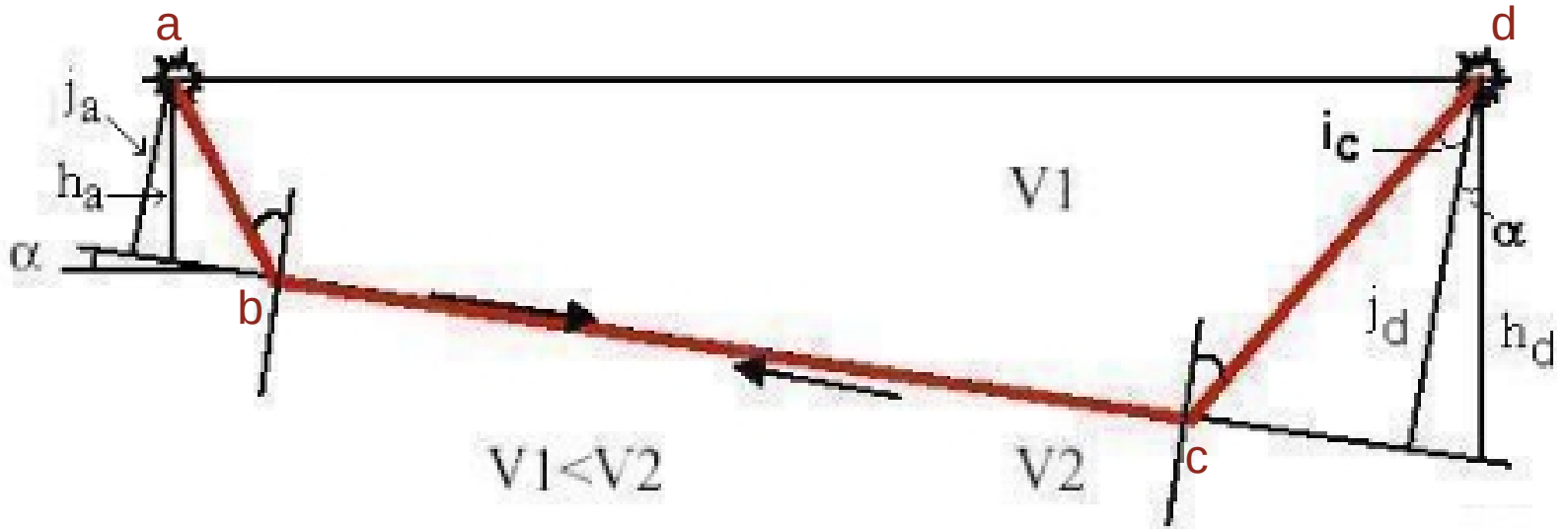
Atenção com a notação das fórmulas:
diversos autores com notações diferentes.

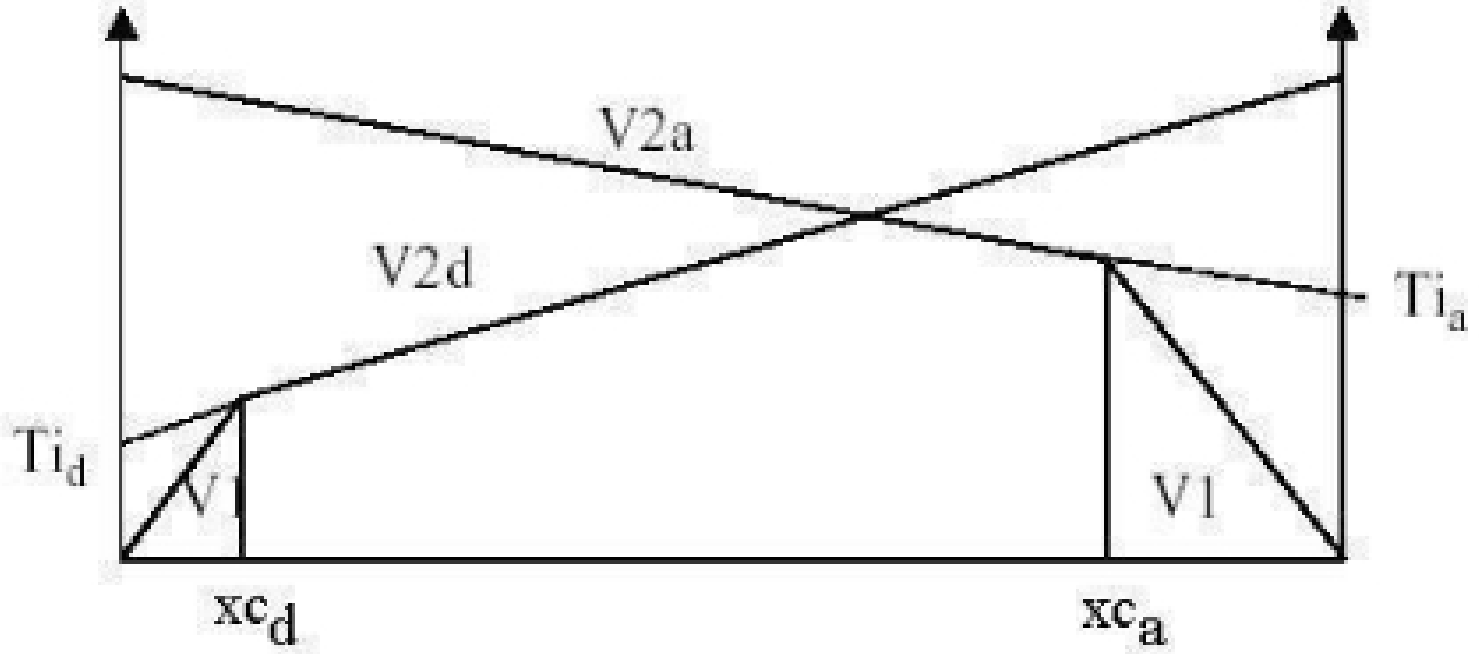
Importante entender o significado dos termos.

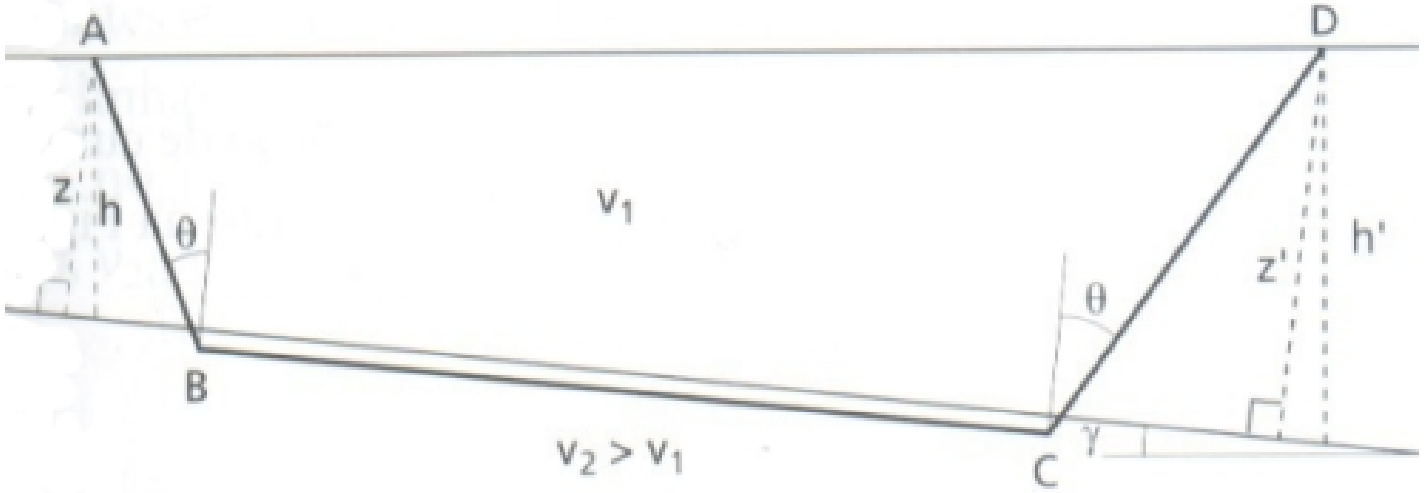
Slides a seguir, com alguns exemplos:

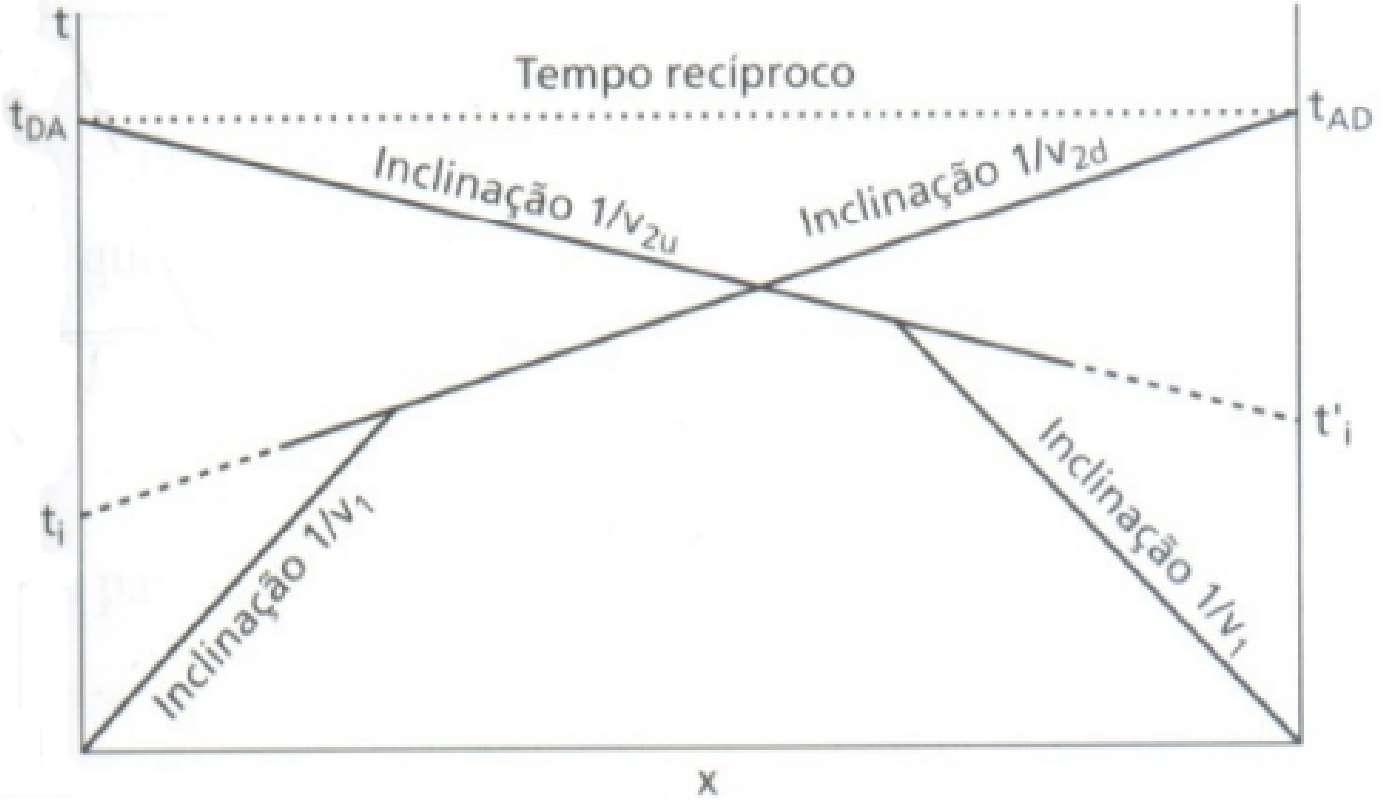

time (t)
distance (x)
$\frac{1}{v_{2_r}}$
$\frac{1}{v_{2_f}}$
$\frac{1}{v_1}$
$\frac{1}{v_1}$
t_{int_f}
t_{int_r}

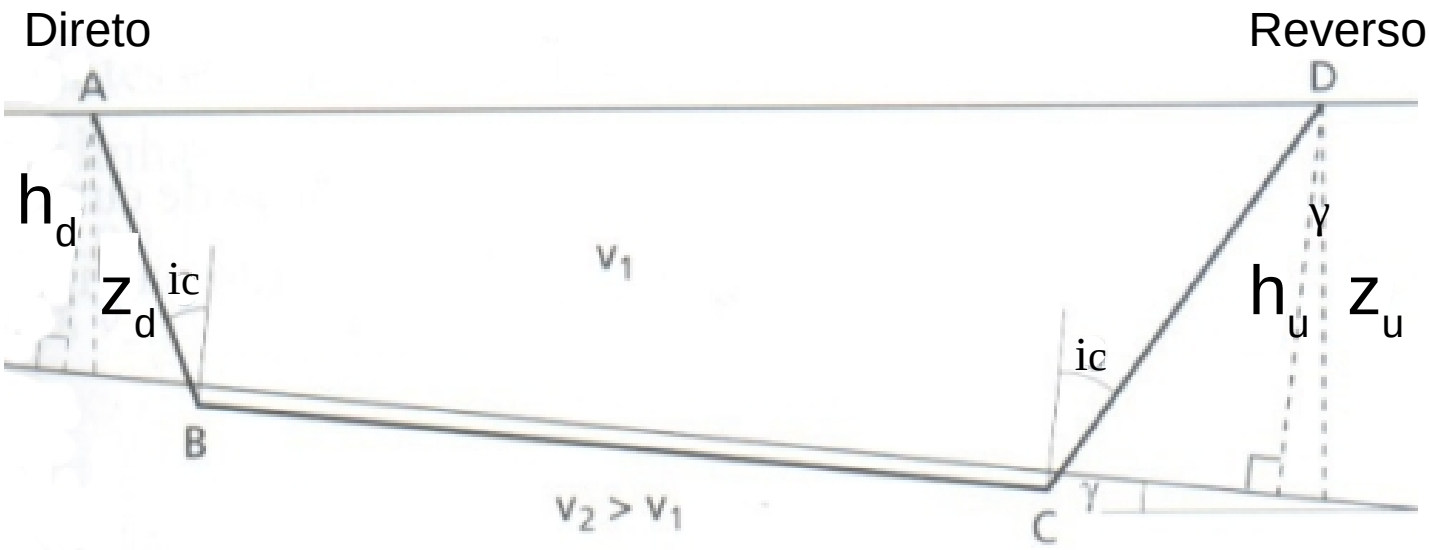

S_f
S_r
v_1
h_{1_f}
i_c
angle α
$v_2 > v_1$
i_c
h_{1_r}


a
d
j_a
h_a
α
b
V1
i_c
α
j_d
h_d
V1<V2
V2
c


V2a
V2d
Ti_a
Ti_d
V1
V1
xc_d
xc_a

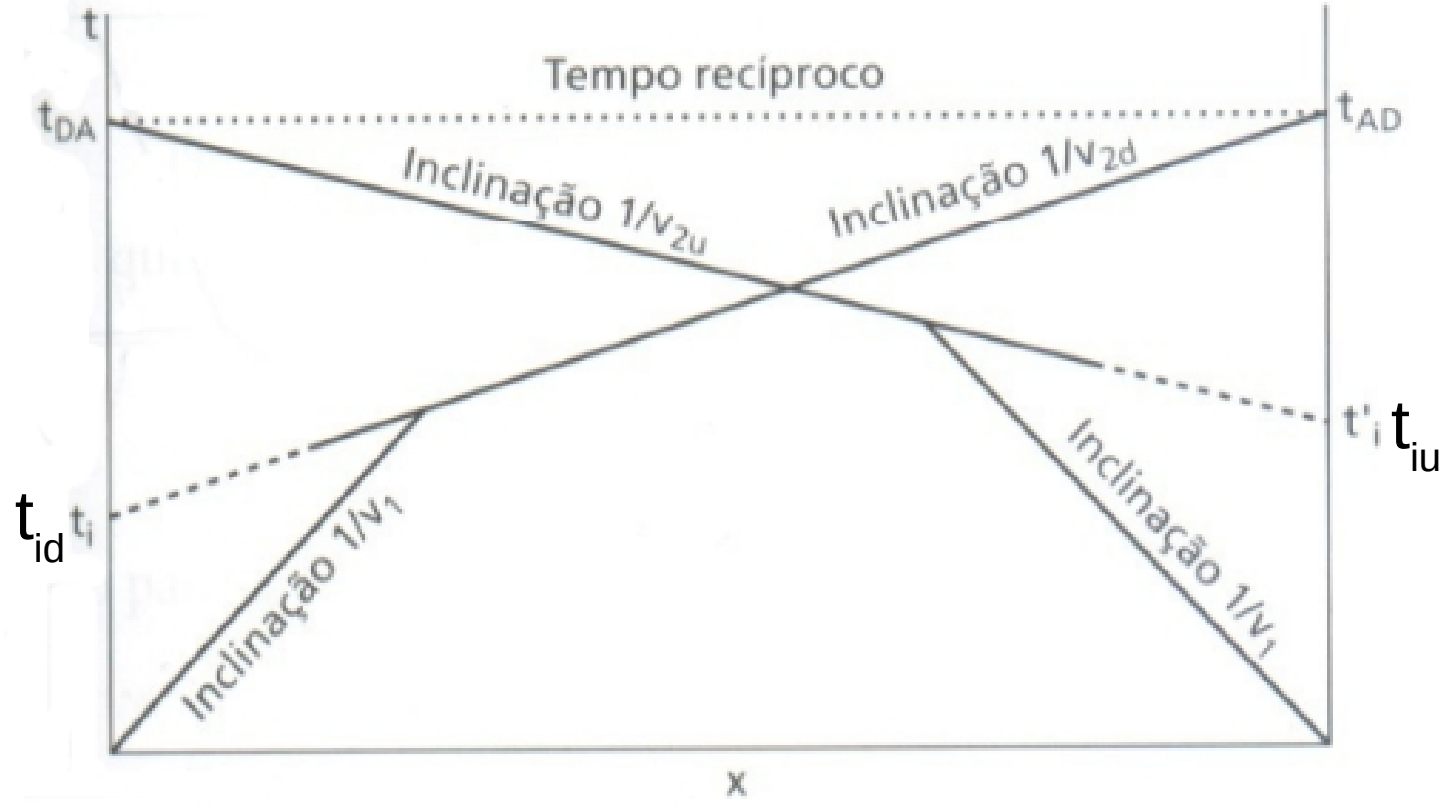

A
D
z
h
θ
v_1
θ
z'
h'
B
$v_2 > v_1$
C
γ


t
Tempo recíproco
t_{DA}
t_{AD}
Inclinação $1/v_{2u}$
Inclinação $1/v_{2d}$
t'_i
t_i
Inclinação $1/v_1$
Inclinação $1/v_1$
x



h = espessura calculada, é perpendicular à interface

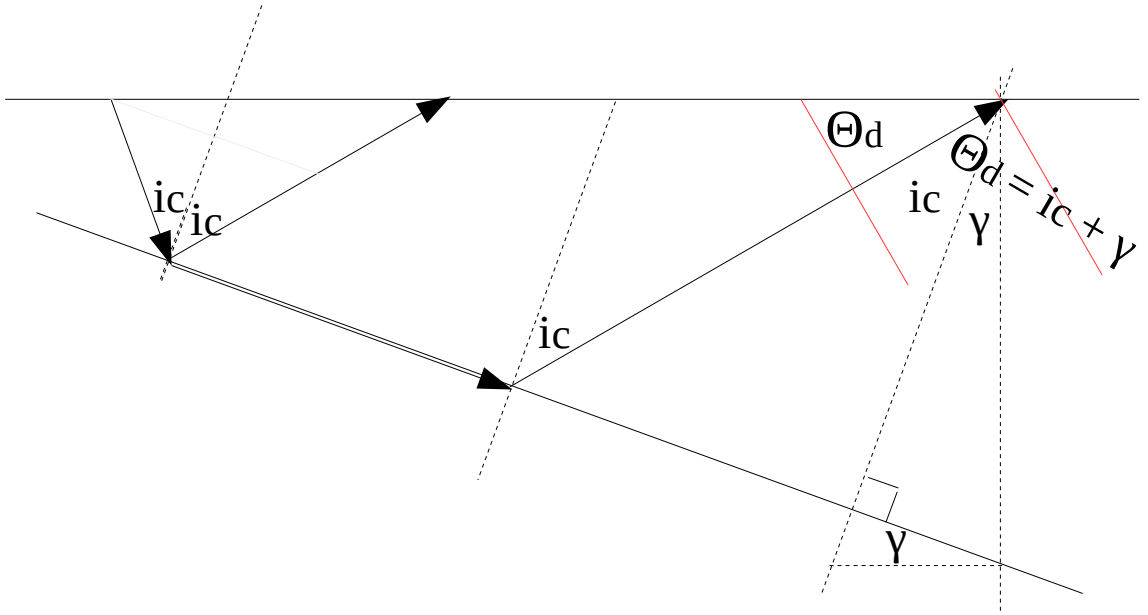
z = espessura perpendicular à superfície



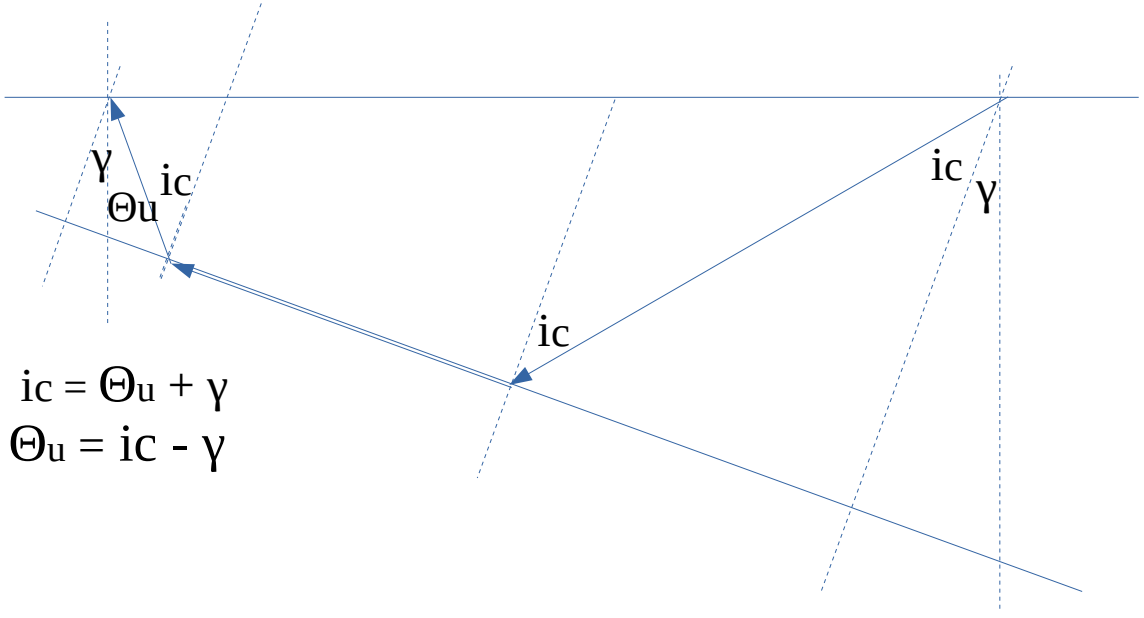
$$\cos(\gamma) = \frac{h_u}{z_u}$$

$$z_u = \frac{h_u}{\cos(\gamma)}$$

$$z_d = \frac{h_d}{\cos(\gamma)}$$



$$\frac{1}{Vap_d} = \frac{1}{V_{2_d}} = \frac{sen(ic+\gamma)}{V_1}$$



ic = Θu + γ

Θu = ic - γ

$$\frac{1}{Vap_u} = \frac{1}{V_{2_u}} = \frac{sen(ic-\gamma)}{V_1}$$

$$t_d(x) = \frac{X}{Vap_d} + ti_d$$

$$t_u(x) = \frac{X}{Vap_u} + ti_u$$

$$\frac{1}{Vap_d} = \frac{1}{V_{2_d}} = \frac{sen(ic+\gamma)}{V_1}$$

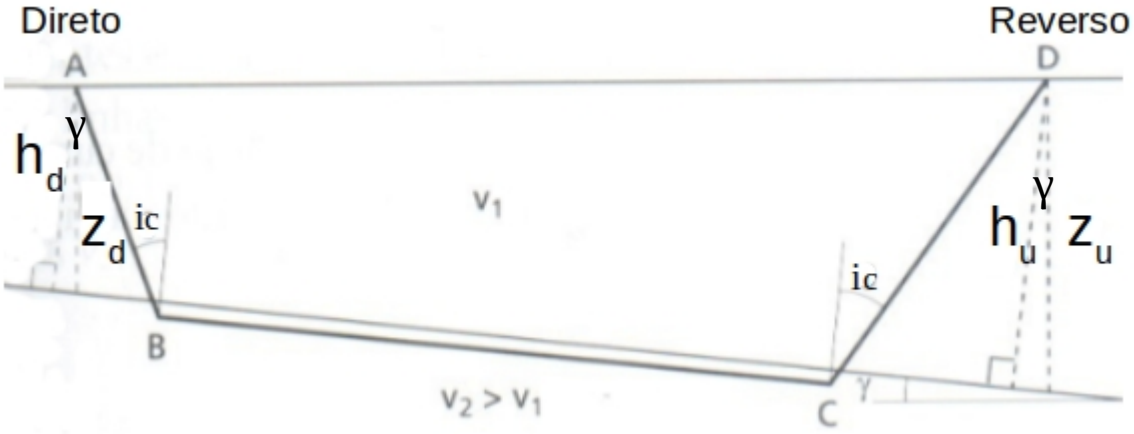
$$\frac{1}{Vap_u} = \frac{1}{V_{2_u}} = \frac{sen(ic-\gamma)}{V_1}$$

$$ti_d = \frac{2h_d \cos(ic)}{V_1}$$

$$ti_u = \frac{2h_u \cos(ic)}{V_1}$$

$$z_d = \frac{h_d}{\cos(\gamma)}$$

$$z_u = \frac{h_u}{\cos(\gamma)}$$



Exercícios 6 – Parte 2 (impresso)

Proposta de trabalhar com essas expressões

$$t_d(x) = \frac{X}{Vap_d} + ti_d$$

$$t_u(x) = \frac{X}{Vap_u} + ti_u$$

$$\frac{1}{Vap_d} = \frac{1}{V_{2_d}} = \frac{sen(ic+\gamma)}{V_1}$$

$$\frac{1}{Vap_u} = \frac{1}{V_{2_u}} = \frac{sen(ic-\gamma)}{V_1}$$

$$ti_d = \frac{2\,h_d \cos(ic)}{V_1}$$

$$ti_u = \frac{2\,h_u \cos(ic)}{V_1}$$

Na próxima aula vou mostrar outra forma para deduzir as equações t(x) e determinar a expressão do ti_d e ti_u

$$z_u = \frac{h_u}{\cos(\gamma)}$$

$$z_d = \frac{h_d}{\cos(\gamma)}$$