Prof. A.W. Dale 1
Lec. 41-42-
Dulc. 29-04-11

Lorent

Lorentz

$$\frac{1}{\sqrt{1-\frac{v^2}{c^2}}}.$$

$T_w \gtrless T_\infty$

$\omega_{v_w} \gtrless \omega_{v_\infty}$

$\beta(T_w - T_\infty)$

$\beta^*(\omega_{v_w} - \omega_{v_\infty})$

$$A \begin{bmatrix} p_1 & p_2 & \cdots & p_n \end{bmatrix} = PD.$$

$$\|$$

$$\begin{bmatrix} Ap_1 & Ap_2 & \cdots & Ap_n \end{bmatrix}$$

$$= \begin{bmatrix} p_1 & p_2 & \cdots & p_n \end{bmatrix} \begin{bmatrix} d_{11} & & & \\ & d_{22} & & \\ & & \ddots & \\ & & & d_{nn} \end{bmatrix}.$$

$$= \begin{bmatrix} d_{11} p_1 & d_{22} p_2 & \cdots & d_{nn} \cdot p_n \end{bmatrix}.$$

$$\overline{Nu_L} = \frac{\overline{h_L} \cdot L}{k}$$

$$\overline{h_L} = \frac{1}{L} \int_0^L h_x \, dx$$

$$f''' + 3ff'' - 2f'^2 + \theta = 0$$

$$\frac{d^2 f'}{d\eta^2} + 3f\frac{df'}{d\eta} - 2f'^2 + \theta = 0$$

$$\frac{d^2\theta}{d\eta^2} + 3Pr\, f\frac{d\theta}{d\eta} = 0$$

$$\boxed{f' = \frac{df}{d\eta}}$$

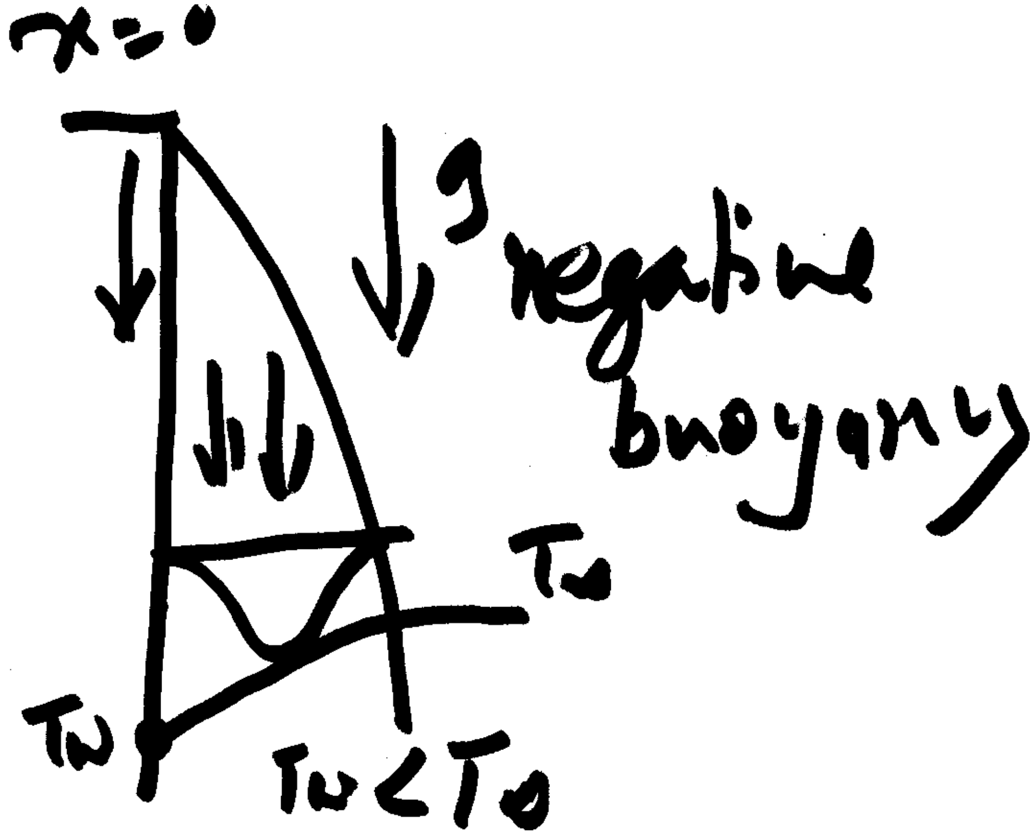
$$\frac{d^2 f'}{d\eta^2} = \frac{f'_{i+1} - 2f'_i + f'_{i-1}}{\Delta\eta^2}$$

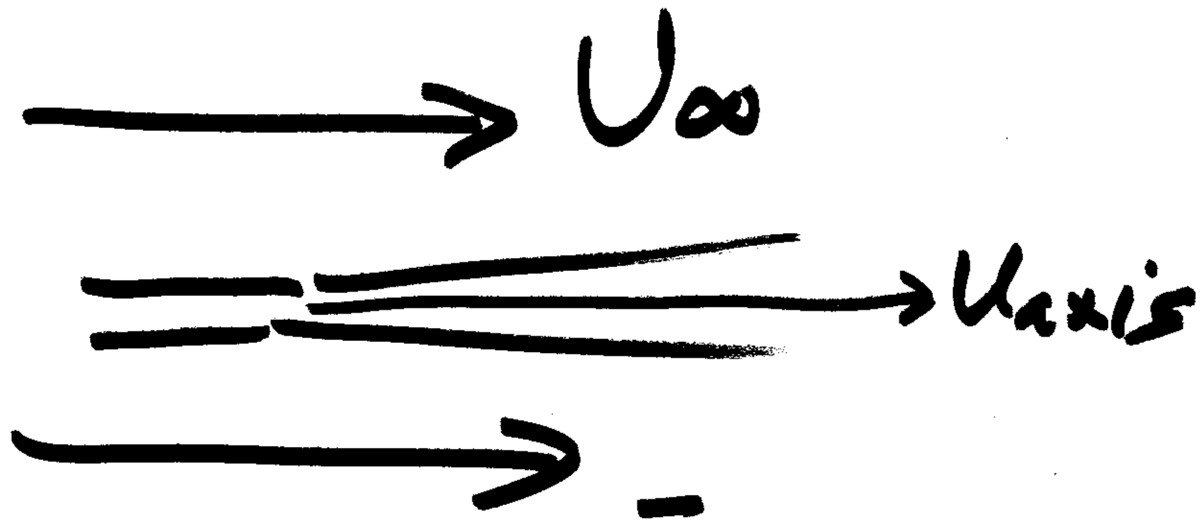
$$-\frac{dP_\infty}{dx} - \rho g$$

$$= (\rho_\infty - \rho) g = \rho \underline{\beta g (T - T_\infty)}$$

$$\beta = -\frac{1}{\rho} \frac{(\rho - \rho_\infty)}{(T - T_\infty)}$$

$\rho \beta$


x=0
g
negative
buoyancy
T∞
Tw
Tw<T∞



$$f' = l_m \left[\frac{\partial \bar{f}}{\partial r} \right] \text{strich.}$$

$$l_m = 0.1875\, r_{1/2}$$

turbulent
round jet.