We have this additional term

$$\boxed{+\sum_{b=1}^{n_{eb}} \left(w^h \tau_B, u^h - 0\right)_{\Gamma_b \cap \Gamma}}$$

$\chi = 0{,}4$

$B = 5{,}5$

Problem is how to compute τ_B, we use Spalding law

$$y^+ = f(u^+) = u^+ + e^{-\chi B}\left(e^{\chi u^+} - 1 - \chi u^+ - \frac{(\chi u^+)^2}{2} - \frac{(\chi u^+)^3}{6}\right)$$

$$y^+ = \frac{y u^*}{\nu} \qquad u^+ = \frac{\| u^h \|}{u^*} \qquad \tau_B = \frac{u^{*2}}{\| u^h \|}$$

$$\boxed{u^+ = \| u^h \|^{1/2} \tau_B^{-1/2}} \qquad \boxed{y^+ = \frac{h_b}{\nu C_B^I} \tau_B^{1/2} \| u^h \|^{1/2}}$$

$$h_B = 2 (n^T G n)^{-1/2} \qquad u^* = \tau_B^{1/2} \| u^h \|^{1/2}$$

The residual is

$r = y^+ - f(u^+)$ I want to find τ_B s.t. $r = 0$

$$r = \frac{h_b}{\nu C_B^I} \tau_B^{-1/2} \| u^h \|^{-1/2} - u^+ - e^{-\chi B}\left(e^{\chi u^+} - 1 - \chi u^+ - \frac{(\chi u^+)^2}{2} - \frac{(\chi u^+)^3}{6}\right)$$

with $u^+ = \| u^h \|^{1/2} \tau_B^{-1/2}$

everything is given, I can compute τ_B solving

$r(\tau_B) = 0$

$$y^+ = \frac{y u^*}{\nu} \qquad u^+ = \frac{\|u^h\|}{u^*} \qquad y = \frac{h_b}{C_b^I}$$

$$y^+ = \frac{h_b}{C_b^I} \frac{u^*}{\nu} \qquad u^* = \tau_B^{1/2} \|u_h\|^{1/2}$$

$$u^+ = \frac{\|u^h\|^{1/2} \tau_B^{-1/2}}{\tau_B^{1/2} \cancel{\|u_h\|^{1/2}}}$$