

$$\text{Final Point on Expansion Grid : } \{x_{field}, y_{field}, \theta_{field}, M_{field}\} \rightarrow \begin{bmatrix} v_{field} \\ \mu_{field} \end{bmatrix}$$

$$\rightarrow \begin{bmatrix} v_{wall} \\ \mu_{wall} \end{bmatrix} \rightarrow \text{slope}\{C^+\} = \left(\frac{\theta_{field} + \mu_{field} + \theta_{wall} + \mu_{wall}}{2} \right)$$

Current Wall Slope : θ_{wall}

$$\theta_{wall} - v_{field} = \theta_{wall} - v_{wall} \rightarrow v_{wall} = (\theta_{wall} - \theta_{field}) + v_{field}$$

$$\left. \begin{array}{l} \frac{y_{wall} - y_1}{x_w - x_1} = \tan(\theta_{wall}) \\ \frac{y_{wall} - y_{field}}{x_{wall} - x_{field}} = \tan(\text{slope}\{C^+\}) \end{array} \right\} \rightarrow \begin{array}{l} y_{wall} - x_{wall} \cdot \tan(\theta_{wall}) = y_1 - x_1 \cdot \tan(\theta_{wall}) \\ y_{wall} - x_{wall} \cdot \tan(\text{slope}\{C^+\}) = y_{field} - x_{field} \cdot \tan(\text{slope}\{C^+\}) \end{array}$$

$$y_{wall} - x_{wall} \cdot \tan(\theta_{wall}) = y_1 - x_1 \cdot \tan(\theta_{wall})$$

$$y_{wall} - x_{wall} \cdot \tan(\text{slope}\{C^+\}) = y_{field} - x_{field} \cdot \tan(\text{slope}\{C^+\})$$

$$\begin{bmatrix} y_1 - x_1 \cdot \tan(\theta_{wall}) \\ y_{field} - x_{field} \cdot \tan(\text{slope}\{C^+\}) \end{bmatrix} = \begin{bmatrix} -\tan(\theta_{wall}) & 1 \\ -\tan(\text{slope}\{C^+\}) & 1 \end{bmatrix} \begin{bmatrix} x_{wall} \\ y_{wall} \end{bmatrix}$$

$$\begin{bmatrix} x_{wall} \\ y_{wall} \end{bmatrix} = \frac{\begin{bmatrix} 1 & -1 \\ \tan(\text{slope}\{C^+\}) & -\tan(\theta_w) \end{bmatrix} \cdot \begin{bmatrix} y_1 - x_1 \cdot \tan(\theta_w) \\ y_{field} - x_{field} \cdot \tan(\text{slope}\{C^+\}) \end{bmatrix}}{\tan(\text{slope}\{C^+\}) - \tan(\theta_w)} =$$

$$\frac{y_1 - x_1 \cdot \tan(\theta_{wall}) - (y_{field} - x_{field} \cdot \tan(\text{slope}\{C^+\}))}{\tan(\text{slope}\{C^+\}) - \tan(\theta_w)}$$

$$\frac{\tan(\text{slope}\{C^+\}) \cdot (y_1 - x_1 \cdot \tan(\theta_w)) - \tan(\theta_{wall}) \cdot (y_{field} - x_{field} \cdot \tan(\text{slope}\{C^+\}))}{\tan(\text{slope}\{C^+\}) - \tan(\theta_w)}$$

$$\boxed{x_{wall} = \frac{x_1 \cdot \tan(\theta_{wall}) - x_{field} \cdot \tan(\text{slope}\{C^+\}) + (y_{field} - y_1)}{\tan(\theta_{wall}) - \tan(\text{slope}\{C^+\})}$$

$$y_{wall} = \frac{\tan(\theta_{wall}) \cdot \tan(\text{slope}\{C^+\}) \cdot (x_1 - x_{field}) + \tan(\theta_{wall}) \cdot y_{field} - \tan(\text{slope}\{C^+\}) \cdot y_1}{\tan(\theta_{wall}) - \tan(\text{slope}\{C^+\})}$$

$$\rightarrow \text{slope}\{C^+\} = \frac{\theta_{wall} + \mu_{wall} + \theta_{field} + \mu_{field}}{2}$$