$$\left(\nu \boldsymbol{\nabla}\, p^{k+1} \underline{v}_T, \boldsymbol{\nabla} w\right)_T = (\nu \boldsymbol{\nabla} v_T, \boldsymbol{\nabla} w)_T + \sum_{F \in \mathcal{F}_h} (v_F - v_T, \nu \boldsymbol{\nabla} w \cdot \mathbf{n}_{TF})_F$$

$$\left(p^{k+1} \underline{v}_T, 1\right)_T = (v_T, 1)_T\,, \quad \forall \underline{v}_T \in \underline{U}_T, \forall w \in \mathbb{P}_d^{k+1}(T)$$

$$\left(\nu \boldsymbol{\nabla}\, p^{k+1} \underline{v}_T, \boldsymbol{\nabla} w\right)_T = (\nu \boldsymbol{\nabla} v_T, \boldsymbol{\nabla} w)_T + \sum_{F \in \mathcal{F}_h} \left[(v_F, \nu \boldsymbol{\nabla} w \cdot \mathbf{n}_{TF})_F - (v_T, \nu \boldsymbol{\nabla} w \cdot \mathbf{n}_{TF})\right.$$

$$
\begin{aligned}
w &\in \mathbb{P}_d^{k+1}(T) \\
v_T &\in \mathbb{P}_d^{k}(T) \\
v_F &\in \mathbb{P}_{d-1}^{k}(F) \\
\underline{v}_T &\in \underline{U}_T \\
p^{k+1}\underline{v}_T &\in \mathbb{P}_d^{k+1}(T) \\
p^{k+1} &: \underline{U}_T \to \mathbb{P}_d^{k+1}(T) \\
\underline{U}_T &:= \mathbb{P}_d^{k}(T) \times \left\{ \bigtimes_{F \in \mathcal{F}_T} \mathbb{P}_{d-1}^{k}(F) \right\} \qquad (1)
\end{aligned}
$$

$$\left(\boldsymbol{\nabla}\varphi_j^{k+1}, \nu\boldsymbol{\nabla}\varphi_i^{k+1}\right)_T$$

$$\left(\boldsymbol{\nabla}\varphi_j^{k+1}, \nu\boldsymbol{\nabla}\varphi_i^{k}\right)_T$$

$$\left(\nu \boldsymbol{\nabla} \varphi_i^{k+1} \cdot \mathbf{n}_{FT}, \boldsymbol{\nabla} \psi_j^{F_0,k}\right)_{F_0}$$

Element T with N faces $F_{n=\{1,\ldots,N\}}$

$\{\varphi_i\}_{i=1,\ldots,N_{\text{dof}}^{d,k+1}}$: is a basis for $\mathbb{P}_d^{k+1}(T)$

$\{\psi_i^{F_n}\}_{i=1,\ldots,N_{\text{dof}}^{d-1,k}}$: is a basis for $\mathbb{P}_{d-1}^{k}(F_n)$