Long Title

Your Name

Joint work with X (from here),
Y (from here) and Z (from here)

Outline

Section 1

Frame Title

$$
\begin{aligned}
-\varepsilon\Delta u + b\cdot\nabla u &= f \quad \text{in } \Omega\subset\mathbb{R}^d \\
u &= 0 \quad \text{on } \partial\Omega
\end{aligned}
$$

Look at these equations...

Theorem

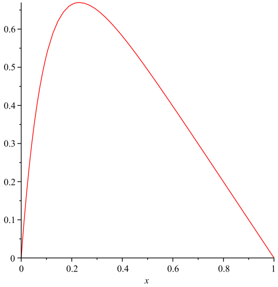
A Theorem
$$-\frac{1}{2}\nabla\cdot b \geq \rho \geq 0.$$

Proof.

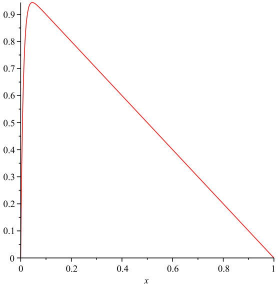
A Proof □

Frame Title

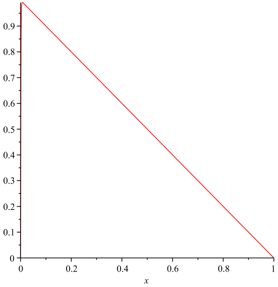
There are some pictures below...



(a) $\varepsilon = 0.1$



(b) $\varepsilon = 0.01$

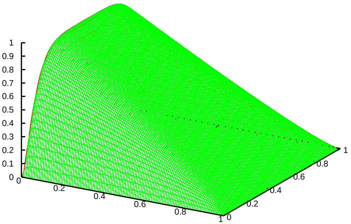


(c) $\varepsilon = 0.001$

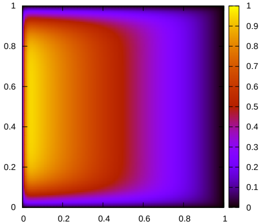
Another Frame

Some equations and pictures...

$$\begin{aligned} -0.01\Delta u + (-1,0)^\top \cdot \nabla u &= 1 \quad \text{in } \Omega \subset \mathbb{R}^d \\ u &= 0 \quad \text{on } \partial\Omega \end{aligned}$$



(a) Standard plot



(b) Temperature map

Section 2

Frame Title

A definition...

Definition (Something to Define)

Some text...

$$B_\varepsilon(u_h, v) := \varepsilon(\nabla u_h, \nabla v) + (b.\nabla u_h, v) = (f, v) \quad \forall v \in V_h.$$

MORE?

Section 3

listing things...

- Γ the union of boundary faces (those in $\partial\Omega$).
- For $e \in \mathcal{E}_h^o$, T^+ is the downwind cell, T^- the upwind cell as determined by $b \cdot n$ on the face from each cell, n being the outward pointing normal.
- For $e \in \mathcal{E}_h^o$ the jump $[\![\cdot]\!]$ and average $\{\!\{\cdot\}\!\}$ are defined by

$$[\![\nu]\!] = \nu^+ n^+ + \nu^- n^-, \quad [\![\boldsymbol{\tau}]\!] = \boldsymbol{\tau}^+ \cdot n^+ + \boldsymbol{\tau}^- \cdot n^-$$
$$\{\!\{\nu\}\!\} = \frac{1}{2}(\nu^+ + \nu^-), \quad \{\!\{\boldsymbol{\tau}\}\!\} = \frac{1}{2}(\boldsymbol{\tau}^+ + \boldsymbol{\tau}^-).$$

- On the boundary these become

$$[\![\nu]\!] = \nu n, \quad \{\!\{\nu\}\!\} = \nu, \quad \{\!\{\boldsymbol{\tau}\}\!\} = \tau.$$

- A very useful identity

$$\sum_{T \in \mathcal{T}_h} \int_{\partial T} \nu \boldsymbol{\tau} \cdot n = \int_{e \in \mathcal{E}_h} [\![\nu]\!] \cdot \{\!\{\boldsymbol{\tau}\}\!\} + \int_{e \in \mathcal{E}_h^o} \{\!\{\nu\}\!\} [\![\boldsymbol{\tau}]\!]$$

Section 4

Future work on...

- Idea 1.
- Idea 2.
- Idea 3.

Extra info...

References