

**Discontinuous Galerkin Methods for  
Solving Elliptic and Parabolic Equations. Theory and Implementation**  
**B. Riviere**  
**List of typos**  
**November 13, 2010**

Here is a list of misprints and clarifications. I would like to thank the readers for helping find the typos.

- page 29 line -10: the variable  $\epsilon$  is misplaced. The correct formula is:

$$L(v) = \int_{\Omega} f v + \sum_{e \in \Gamma_D} \int_e \left( \epsilon \mathbf{K} \nabla v \cdot \mathbf{n}_e + \frac{\sigma_e^0}{|e|^{\beta_0}} v \right) g_D + \sum_{e \in \Gamma_N} \int_e v g_N.$$

- page 31 line 5: clarification. The space  $\mathcal{D}(E)$  is the space of  $\mathcal{C}^\infty$  functions with compact support in  $E$ .
- page 52 line -5: the sign for the first term in the formula for  $m_e^{21}$  is wrong. The correct formula is:

$$m_e^{21} = \frac{1}{2} \int_e \mathbf{K} \nabla P_{h,1} \cdot \mathbf{n}_e v_2 + \frac{\epsilon}{2} \int_e \mathbf{K} \nabla v_2 \cdot \mathbf{n}_e P_{h,1} - \frac{\sigma_e^0}{|e|^{\beta_0}} \int_e P_{h,1} v_2.$$

- page 53 line 2: the sign for the first term in the formula for  $\mathbf{M}_e^{21}$  is wrong. The correct formula is:

$$(\mathbf{M}_e^{21})_{ij} = \frac{1}{2} \int_e \mathbf{K} \nabla \phi_{j,E_e^1} \cdot \mathbf{n}_e \phi_{i,E_e^2} + \frac{\epsilon}{2} \int_e \mathbf{K} \nabla \phi_{i,E_e^2} \cdot \mathbf{n}_e \phi_{j,E_e^1} - \frac{\sigma_e^0}{|e|^{\beta_0}} \int_e \phi_{j,E_e^1} \phi_{i,E_e^2}.$$

- page 53 line 7: the correct formula for  $(\mathbf{b}_e)_i$  is:

$$(\mathbf{b}_e)_i = \int_e \left( \epsilon \mathbf{K} \nabla \phi_{i,E_e^1} \cdot \mathbf{n}_e + \frac{\sigma_e^0}{|e|^{\beta_0}} \phi_{i,E_e^1} \right) g_D.$$

- page 55 line 4: the correct formula for  $\mathbf{M}_e^{21}(i, j)$  is:

$$\mathbf{M}_e^{21}(i, j) = \mathbf{M}_e^{21}(i, j) - \sigma_e^0 w(k) \phi_{i,E_e^2}(s(k)) \phi_{j,E_e^1}(s(k))$$

- page 55 line 5 of algorithm 2.3: the correct sentence is: for  $i = 1$  to  $N_{loc}$  do.

- page 129 line 6: the variable  $\mathbf{U}$  should read  $\mathbf{U}_h$ .
- page 129 last line of Theorem 6.12: the line should read *where  $\delta = 1$  for SIPG and  $\delta = 0$  for IIPG and NIPG.*
- page 166 line -4: the third argument for `Aloc` should be removed:  
`Aloc(idofs,jdofs).`