Discontinuous Galerkin Methods for Solving Elliptic and Parabolic Equations. Theory and Implementation
B. Riviere

List of typos
June 2012

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

• page 3 line -3: replace $j$ by $n$.

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

$$L(v) = \int_{\Omega} fv + \sum_{e \in \Gamma_D} \int_{e} \left( \epsilon K \nabla v \cdot n_e + \frac{\sigma^0_e}{|e|_{\beta_0}} v \right) gD + \sum_{e \in \Gamma_N} \int_{e} vg_N.$$

• page 31 line 5: clarification. The space $D(E)$ is the space of $C^\infty$ functions with compact support in $E$.

• page 52 line -5: the sign for the first term in the formula for $m^{21}_e$ is wrong. The correct formula is:

$$m^{21}_e = 1 2 \int_{e} K \nabla P_{h,1} \cdot n_{e} v_2 + \epsilon 2 \int_{e} K \nabla v_2 \cdot n_{e} P_{h,1} - \frac{\sigma^0_e}{|e|_{\beta_0}} \int_{e} P_{h,1} v_2.$$

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

$$(M^{21}_e)_{ij} = 1 2 \int_{e} K \nabla \phi_{j,E_1^1} n_e \phi_{i,E_2^1} + \epsilon 2 \int_{e} K \nabla \phi_{j,E_2^1} n_e \phi_{i,E_1^1} - \frac{\sigma^0_e}{|e|_{\beta_0}} \int_{e} \phi_{j,E_2^1} \phi_{i,E_1^1}.$$

• page 53 line 7: the correct formula for $(b_e)_i$ is:

$$(b_e)_i = \int_{e} \left( \epsilon K \nabla \phi_{i,E_1^1} \cdot n_e + \frac{\sigma^0_e}{|e|_{\beta_0}} \phi_{i,E_1^1} \right) gD.$$

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

$$M^{21}_e(i, j) = M^{21}_e(i, j) - \sigma^0_e w(k) \phi_{i,E_1^2} s(k) \phi_{j,E_2^1}(s(k))$$
• page 55 line 5 of algorithm 2.3: the correct sentence is: for $i = 1$ to $N_{loc}$ do.

• page 73 line 6: $H_{10}^0(\Omega)$ should read $H_0^1(\Omega)$.

• page 74 line 10: in the definition of the energy norm, for the second term, $\|v\|_{L^2(\epsilon)}^2$ should read $\|[v]\|_{L^2(\epsilon)}^2$.

• page 84 line 13: the term $(M + \Delta t A)$ should read $(M - \Delta t A)$

• page 127 lines -1, -2: the terms $h^k|u|_{H^{k+1}(\Omega)}$ should read $h^{2k}|u|_{H^{k+1}(\Omega)}$.

• page 129 line 6: the variable $U$ should read $U_h$.

• 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 6: the third argument for $A_{loc}$ should be removed: $A_{loc}(\text{idofs, jdofs})$. The same comment holds for the third argument of variables $B_{loc11}$, $B_{loc22}$, $B_{loc12}$, $B_{loc21}$ on pages 170 and 171.