

Corrigendum on "Elliptic-Parabolic Equations of the Second Order"

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In a previous paper [1] we asserted the uniqueness of the weak solutions to the Dirichlet boundary-value problem for second order elliptic-parabolic partial differential equations. The proof required that we establish the uniqueness of the weak solutions of an equivalent first order system. However in [1] the weak and strong operators K_w and K_s associated with the first order system were not properly defined; in fact as given they are not well-defined when the derivatives of the coefficients b^{ij} blow up near the boundary. Fortunately this is easily remedied; it suffices to define the test functions for K_w to consist of all vector-valued functions V in $C(\bar{G}) \cap C^1(G)$ with v^0 in $C^2(\bar{G})$, $v^0 = 0$ on $\sum_1 \cup \sum_s$ and such that MV lies in H . Essentially this requires that $b^{ij}v^j$ be smooth in \bar{G} . In particular if w^j is in $C^1(\bar{G})$ then $v^i = b^{ij}w^j$ will satisfy this condition since $b^{ij}v^j = \alpha^{ij}w^j$ will then be smooth.

Keeping this in mind it is easy to see that the arguments in [1] hold as stated if the following specific changes in the definitions are made:

5 lines after equation (3): For " v in $C^1(\bar{G})$ " read

$$"v \text{ in } C^1(G) \cap C(\bar{G}) \text{ with } \partial_i(b^{ij}v) \in L_2(G)"$$

3 lines after equation (1.7): For " $V \in C^1(\bar{G})$ " read

$$"V \in C(\bar{G}) \cap C^1(G) \text{ with } MV \in H \text{ and}"$$

2 lines after equation (1.8): For " $U \in C^1(\bar{G})$ " read

$$"U \in C(\bar{G}) \cap C^1(G) \text{ with } KU \in H"$$

4 lines after equation (1.11): For "smooth w^i " read

$$"w^i \in C(\bar{G}) \cap C^1(G) \text{ such that } \partial_i(b^{ij}w^j) \in L_2(G)"$$

6 lines after equation (1.11): For " V ", read " v^0 "

Line 5 of Lemma 1.2: For " $U^i \in C^1$ " read " $U^i \in C$ "

We also note the typographical error 4 lines before equation (2): Replace " $n - 2$ " by " $m - 2$ ".

REFERENCES

- [1] R. S. PHILLIPS & L. SARASON, Elliptic-parabolic equations of the second order, *J. Math. Mech.*, 17 (1968) 891-917.