

ADDENDUM to the paper “Global existence, uniqueness and regularity of solutions to a Von Karman system with nonlinear boundary dissipation” by “A. Favini, M.A. Horn, I. Lasiecka and D. Tataru;” *Differential and Integral Equations*, vol. 9, No. 2 (1996), 267–294.

The aim of this note is to correct an error in [1] and to simplify some of the proofs there. Part (ii) of Theorem 5.1 in [1] is incorrect, and this also affects the proof of Theorem 2.1. This can be corrected as follows:

Correction to the proof of Theorem 2.1 in [1]. All the $H^3(\Omega)$ norms should be substituted by $W^{2,\infty}(\Omega)$ norms.

The additional regularity of the Airy stress functions claimed in part (i) of Theorem 5.1 in [1] can be further improved. Theorem 5.1 is restated as follows:

Theorem 0.1. *The map $(u, v) \rightarrow G(u, v)$ is bounded from $H^2(\Omega) \times H^2(\Omega) \rightarrow H^3(\Omega) \cap W^{2,\infty}(\Omega) \cap W^{4,1}(\tilde{\Omega})$.*

Proof. The $H^3(\Omega) \cap W^{4,1}(\tilde{\Omega})$ regularity has been shown already in [1]. It suffices to establish the $W^{2,\infty}(\Omega)$ regularity. In effect one can prove that if $u, v \in H^2$, then $G(u, v)$ is in the Triebel-Lizorkin space $F_{1,2}^4(\Omega)$ which embeds into $W^{2+2/p,p}$ for all $1 \leq p \leq \infty$. Since $[u, v] \in H_1(\Omega) = F_{1,2}^0(0)$, this follows from results on elliptic boundary value problems in [2]. However, in the sequel we give a more elementary proof of the Theorem.

Step 1. Extend u, v outside Ω and get $[u, v] \in H_1 \subset H^{-1}(R^2)$ as in [1].

Step 2. Solve first

$$\Delta^2 G_0 = [u, v] \quad \text{in } R^2.$$

We get $G_0 \in W^{4,1}(R^2) \subset C^2(R^2) \cap H^3(\Omega)$ (details as in case (a) p. 290 [1]).

Then $G_1 = G - G_0 \in H^3(\Omega)$ solves the inhomogeneous elliptic boundary value problem

$$\Delta^2 G_1 = 0 \quad \text{in } \Omega \tag{1}$$

$$G_1 = -G_0 \in W^{3,1}(\Gamma) \tag{2}$$

$$\partial_\nu G_1 = -\partial_\nu G_0 \in W^{2,1}(\Gamma). \tag{3}$$

It suffices to prove the following regularity:

$$G_1 \in W^{2,\infty}(\Omega). \tag{4}$$