Topological **M**ethods in **N**onlinear **A**nalysis
Journal of the Juliusz Schauder Center
Volume 32, 2008, 415–416

CORRECTION OF "A NONLINEAR PROBLEM FOR AGE-STRUCTURED POPULATION DYNAMICS WITH SPATIAL DIFFUSION"

(TOPOL. METHODS NONLINEAR ANAL. 17 (2001), 307–319)

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In the article: *A nonlinear problem for age-structured population dynamics with spatial diffusion*, Lemma 4.2 is not correct under its present form. Indeed, the strong convergence stated in (i) using the Poincaré Criterion does not hold. However the lemma is true if we add the following in hypothesis (H_1) (p. 308):

(H_1) $\mu \geq 0$, is continuous on $[0,\omega[$ and $\int_0^\omega \mu(a)\,da = \infty$. The last expression means that the probability of population to survive tends to zero when $a \to w$. We also suppose that there exists some positive constant μ_0 such that $\mu \geq \mu_0$, for every $a \in [0,\omega[$.

Remark. The above hypothesis is not restrictive since it concerns the mortality rate $\mu = \mu(a)$ in the problem.

Proof of (i) in Lemma 4.2. From hypothesis (H_1), we write

$$|u_\varepsilon|_{L^2(0,T;L^2(\Theta))} \leq \frac{1}{\mu_0}|\sqrt{\mu}u_\varepsilon|_{L^2(0,T;L^2(\Theta))} \leq \frac{C}{\mu_0},$$

C being constant (see Theorem 4.1). Now with the fact that

$$|\nabla_x u_\varepsilon|_{L^2(0,T;L^2(\Theta))} \leq C,$$

we finally obtain the weak convergence

$$u_\varepsilon \rightharpoonup u \quad \text{in } L^2(0,T;H^1(\Theta)), \quad \text{as } \varepsilon \to 0.$$

Hence u_ε strongly converges in $L^2(0,T;L^2(\Theta))$ to u, thanks to the compact imbedding of $H^1(\Omega) \hookrightarrow L^2(\Theta)$. □

The assertion (ii) and the rest of the paper remain unchanged.

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