J. DIFFERENTIAL GEOMETRY
35 (1992) 763-765

CORRECTION TO "AN EXPANSION OF CONVEX HYPERSURFACES"

JOHN I. E. URBAS

The proof of case (iii) of Theorems 1.1 and 3.1 in [1] is incorrect. First, on p. 116, if $h_{11} < 0$ at (x_t, t), then it is not clear that the minimum of h_{11}/h_{22} at time t occurs at x_t as is assumed. Second, the assertion at the top of p. 117 that $\widetilde{F}_{ij,rs} = 0$ at (x_t, t) is incorrect.

We now give a correct proof of case (iii) of Theorem 3.1, and hence also of case (iii) of Theorem 1.1. Thus we assume $n = 2$ and let Γ, f, and H_0 be as in Theorem 3.1. We need to show that if H is a solution of the initial value problem

$$(1) \qquad \begin{aligned} &\frac{\partial H}{\partial t} = F(\nabla^2 H + HI) - H \quad \text{on } S^2 \times [0, T), \\ &H(\cdot, 0) = H_0, \end{aligned}$$

then the eigenvalues of $\nabla^2 H + HI$ remain in a compact subset of Γ for as long as the solution exists. Problem (1) is then uniformly parabolic and we get higher order estimates as in Lemmas 3.9 and 3.10. The proofs of the existence of a smooth Γ-admissible solution on $S^2 \times [0, \infty)$ and of the assertions concerning asymptotic behavior proceed as before.

Lemmas 3.5 and 3.7 tell us that the eigenvalues of $[h_{ij}] = \nabla^2 H + HI$ remain in $\Gamma \cap [\overline{B_R(0)} - B_r(0)]$ for some controlled positive constants R and r for as long as the solution exists and is Γ-admissible. We shall prove that the eigenvalues of $[h_{ij}]$ in fact lie in a compact subset of $\Gamma \cap [\overline{B_R(0)} - B_r(0)]$.

Since H_0 is Γ-admissible and Γ is open, H_0 is also Γ'-admissible for some slightly narrower symmetric, open, convex cone $\Gamma' \subset \Gamma$ with vertex at the origin. The solution H of (1), which exists at least for small T, is then Γ'-admissible for T small enough. Since $n = 2$ we have

$$(2) \qquad f(\lambda) = \tilde{f}(\lambda) + \sigma(\lambda_1 + \lambda_2) \quad \text{for } \lambda \in \Gamma',$$

Received August 20, 1991.