

COMPOSITIO MATHEMATICA

SIEGMUND KOSAREW

THOMAS PETERNELL

Addendum to the paper : “Formal cohomology, analytic cohomology and non-algebraic manifolds”

Compositio Mathematica, tome 86, n° 1 (1993), p. 121

http://www.numdam.org/item?id=CM_1993__86_1_121_0

© Foundation Compositio Mathematica, 1993, tous droits réservés.

L'accès aux archives de la revue « Compositio Mathematica » (<http://http://www.compositio.nl/>) implique l'accord avec les conditions générales d'utilisation (<http://www.numdam.org/legal.php>). Toute utilisation commerciale ou impression systématique est constitutive d'une infraction pénale. Toute copie ou impression de ce fichier doit contenir la présente mention de copyright.

NUMDAM

Article numérisé dans le cadre du programme
Numérisation de documents anciens mathématiques

<http://www.numdam.org/>

Addendum to the paper:

“Formal cohomology, analytic cohomology and non-algebraic manifolds”

SIEGMUND KOSAREW and THOMAS PETERNELL

Received 11 October 1990; accepted 12 March 1992

We have been informed by Vo Van Tan on an omission in Theorem (5.5) of our paper [K-P]. In fact, Enoki constructed in [E] compact complex surfaces $S_{n,\alpha,t}$ depending on parameters $n \in \mathbb{N}$, $\alpha \in \mathbb{C}$, $0 < |\alpha| < 1$ and $t \in \mathbb{C}^n$, with second Betti number $b_2(S_{n,\alpha,t}) = n$, admitting an effective divisor $D = D_{n,\alpha,t}$ with n irreducible components such that $D^2 = 0$. He proved that any compact complex surface S of class VII_0 with $b_2(S) = n > 0$ having a divisor $D \neq 0$ with $D^2 = 0$, is isomorphic to some $S_{n,\alpha,t}$ and $D = rD_{n,\alpha,t}$.

Moreover, $S_{n,\alpha,t} \setminus D_{n,\alpha,t}$ is an affine \mathbb{C} -bundle over an elliptic curve which is a line bundle if $t = 0$. This affine bundle can be compactified to a ruled surface over an elliptic curve.

It is easily checked that $S_{n,\alpha,t} \setminus D_{n,\alpha,t}$ is Stein for $t \neq 0$ (for instance by [V] p. 4, 5). Taking this into account, Theorem (5.1) of [K-P] formulates now:

(5.1) THEOREM. *Let X be a compact complex surface and $C \subset X$ an irreducible curve with $C^2 = 0$ such that $X \setminus C$ is Stein. Then one of the following statements holds:*

- (i) X is algebraic,
- (ii) X is a Hopf surface of algebraic dimension 0 with exactly one curve,
- (iii) X is isomorphic to some $S_{1,\alpha,t}$ with $t \neq 0$ (and C is rational by [E]).

In the same spirit, we have to add all surfaces $S_{n,\alpha,t}$, $t \neq 0$, in Theorem (5.5) of [K-P]. This does not cause any trouble for the applications in Section 5 of loc. cit., since the divisor D there contains always an elliptic curve which is wrong for $D = D_{n,\alpha,t} \subset S_{n,\alpha,t}$ by Enoki's paper.

References

- [E] I. Enoki: Surfaces of class VII_0 with curves. *Tôhoku Math. J.* 33 (1981), 453–492.
- [K-P] S. Kosarew, T. Peternell: Formal cohomology, analytic cohomology and non-algebraic manifolds. *Compositio Math.* 74 (1990), 299–325.
- [V] Vo Van Tan: On the compactification problem for Stein surfaces. *Compositio Math.* 71 (1989), 1–12.