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## SIEGMUND KOSAREW THOMAS PETERNELL Addendum to the paper : "Formal cohomology, analytic cohomology and non-algebraic manifolds"

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## Addendum to the paper: "Formal cohomology, analytic cohomology and non-algebraic manifolds"

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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<sub>0</sub> 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<sub>0</sub> with curves. *Tohoku 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.