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T-INVARIANT ALGEBRAS ON RIEMANN SURFACES II

ANDRÉ BOIVIN

1. Introductions. In [**7**], T.W. Gamelin has introduced a subclass of planar uniform algebras which are by definition invariant under the so-called Vitushkin localization operators T_φ. In [**7, 8**] (see also [**5**]) he has developed the theory and, in particular, he has proved that a planar T-invariant algebra always has the Banach approximation property.

DEFINITION. A Banach space B has the *Banach approximation property* (BAP) if there exists a sequence $\{P_n\}_{n=1}^\infty$ of finite dimensional linear operators on B such that $P_n f$ converges to f for all $f \in B$.

More recently, J.A. Cima and R.M. Timoney [**4**] have shown that all planar T-invariant algebras also have the Dunford-Pettis property.

DEFINITION. A Banach space B has the *Dunford-Pettis property* (DPP) if, whenever $\{f_n\}_{n=1}^\infty$ is a sequence in B^* tending weakly to 0, then

$$\lim_{n\to\infty} F_n(f_n) = 0.$$

We have, in [**2**], suggested a generalization of the Vitushkin operators to arbitrary non-compact Riemann surfaces and we have then proceeded to outline the development of a theory of T-invariant algebras in this context. We now continue our study by establishing the BAP and the DPP for T-invariant algebras on Riemann surfaces.

REMARK. In 1972, A. Sakai had already used the Behnke-Stein kernel (see [**10**]) in order to define a Cauchy transform and study some of the properties of the T_φ-operators on non-compact Riemann surfaces. We would like to thank the referee who has brought this to our attention.

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