

## On an algebraic extension of $A(E)$

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### Abstract

An algebraic extension of the algebra  $A(E)$ , where  $E$  is a compactum in  $\mathbb{C}$  with nonempty connected interior, leads to a Banach algebra  $B$  of functions that are holomorphic on some analytic set  $K^\circ \subset \mathbb{C}^2$  with boundary  $bK$  and continuous up to  $bK$ . The singular points of the spectrum of  $B$  and their defects are investigated. For the case in which  $B$  is a uniform algebra, the depth of  $B$  in the algebra  $C(bK)$  is estimated. In particular, conditions under which  $B$  is maximal on  $bK$  are obtained.

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### Keywords

Banach algebra, Extension of a Banach algebra, Maximal algebra, Ramified holomorphic covering, Sheaf of germs of continuous functions, Uniform algebra, Unitary polynomial