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The Cauchy-Riemann Equation for Certain 3-Manifolds.

ABSTRACT. Let B be an analytic function on $|z| \leq 1$, with B non-zero on the unit circle. Put

$$X = \{(z, w) \in \mathbb{C}^2 : |w| = |B(z)|, |z| \leq 1\}.$$

The regular part of X is foliated by a one-parameter family of Riemann surfaces S^t . We define A^0 as the space of continuous functions on the three-manifold X , whose restriction to each Riemann surface S^t is holomorphic on S^t , A^0 is a Banach algebra in the sup-norm on X , which is analogous to the disk-algebra.

We study properties of A^0 which are analogous to properties of the disk algebra. Our work continues work by the author in "A Cauchy-Riemann equation for generalized analytic functions", Proc. AMS, (2010)