
David A. Redett

Strongly Annular Functions in Bergman Space

CMFT 7 No.2 (2007), 429–432. [ISSN 1617-9447]

Abstract. A function f holomorphic in the unit disk \mathbb{D} is called strongly annular if there exists a sequence of concentric circles in \mathbb{D} expanding out to the unit circle such that f goes to infinity as $|z|$ goes to 1 through these circles. It follows from the definition that if f has a radial limit, the limit must be infinity. It is clear from this observation that no function in the classical Hardy spaces can be strongly annular. We show in this note that there are strongly annular functions in Bergman space. We give a construction involving lacunary series.

Keywords. Bergman space, annular functions, boundary behavior.

2000 MSC. Primary 46E15, 30B30.

Received. March 7, 2007, in revised form April 17, 2007.

Published online. June 22, 2007.