

# The Spectrum of Generalized Cesaro Operators on Hardy and Bergman Spaces

Scott W. Young

Department of Mathematics  
University of South Carolina

## Abstract

The Cesaro operator has been studied on a variety of Hilbert and Banach spaces. In 1977, Pommerenke introduced a generalization of the Cesaro operator, and until now much of the work has focused on questions of boundedness and compactness conditions of these generalized Cesaro operators. Starting with a brief introduction to Operator Theory,  $C^*$ -algebras and the Calkin algebra, we give a method of computing the spectrum, the essential spectrum, and the Fredholm index for generalized Cesaro operators on the classical spaces  $\mathbf{H}^2$  and  $L_a^2$ . We also give a brief discussion relating generalized Cesaro operators to Toeplitz operators.