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ON NONNEGATIVE OPERATORS AND FULLY CYCLIC PERIPHERAL SPECTRUM *

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Dedicated to Hans Schneider on the occasion of his seventieth birthday

Abstract. In this note the properties of the peripheral spectrum of a nonnegative linear operator A (for which the spectral radius is a pole of its resolvent) in a complex Banach lattice are studied. It is shown, e.g., that the peripheral spectrum of a natural quotient operator is always fully cyclic. We describe when the nonnegative eigenvectors corresponding to the spectral radius r span the kernel $N(r-A)$. Finally, we apply our results to the case of a nonnegative matrix, and show that they sharpen earlier results by B.-S. Tam [*Tamkang J. Math.* 21:65–70, 1990] on such matrices and full cyclicity of the peripheral spectrum.

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